DOCUMENT RESUME

ED 263 364 CE 042 866

AUTHOR	Gujral, Liveleen K.; And Others
TITLE	Vocational English as a Second Language for Welding.
INSTITUTION	Pomona Unified School District, Calif.
PUB DATE	84
NOTE	326p.
PUB TYPE	Guides - Classroom Use - Guides (For Teachers) (052)
EDRS PRICE	MF01/PC14 Plus Postage.
DESCRIPTORS	*Adult Vocational Education; Behavioral Objectives; Blueprints; Classroom Techniques; *Content Area Reading; Cultural Context; Employment Interviews; Equipment Utilization; Fractions; Job Application; *Language Skills; Learning Activities; Measurement Techniques; Metals; Prevocational Education; Refugees; Safety; Secondary Education; Second Language Instruction; *Vocational Adjustment; Vocational Education; *Vocational English (Second Language); *Welding; Work Environment

ABSTRACT

This curriculum is designed to for use with adult refugees studying welding. The first portion of the guide includes 21 lessons in which students are given the opportunity to develop aural comprehension and reading skills while studying such topics as body parts and clothing, safety, welding tools, arc and gas welding, fractions and measurements, metal types and shapes, types of welds, welding defects and problems, and blueprint reading. The next three units, which are intended to provide a cultural orientation to the world of work, deal with job applications, interviews, and behaviors. Basic pronunciation skills are addressed in the final unit. Each unit contains some or all of the following: an introduction, statement of purpose, objectives, vocabulary, materials, procedures, and student lessons. An appendix to the guide includes duplicating masters for use in making flash cards to accompany the lessons. (MN)

****
*   Reproductions supplied by EDRS are the best that can be made   *
*   from the original document.   *
****

ED263364

VOCATIONAL ENGLISH AS A SECOND LANGUAGE

FOR

WELDING

PC&CE

Adult Education
Vocational Education
Career Education
ROP

POMONA CAREER AND
CONTINUING EDUCATION

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

Liveleen K. Gujral

Pat Ryan

Catherine Harris

Julie McCargar

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

B Price

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

CE042866

1984

CONTENTS

Chapter

Page

A. TECHNICAL AND SUB-TECHNICAL ENGLISH FOR WELDING

1. Introduction to Classroom Procedure 1
2. Body Parts and Clothing 8
3. Safety 16
4. Welding Tools 22
5. Welding Tool Actions 40
6. Arc Welding Station 47
7. Gas Welding Station 56
8. Welding Machine Controls 66
9. Welding Angles, Direction, and Motion 75
10. Arc Welding Process 88
11. Gas Welding Process 96
12. Numbers, Fractions, and Measurements 109
13. Metal Types and Shapes 122
14. Types of Welds 135
15. Welding Joints 145
16. Welding Grooves 148
17. Welding Positions 154
18. Welding, Dimensions, and Rods 163
19. Welding Defects 171
20. Causes of Welding Problems and Solutions 178
21. Reading Blueprints 183

B. JOB APPLICATION AND INTERVIEW SKILLS

22. Job Applications 197
23. In the Interview 211
24. On the Job 227

C. PRONUNCIATION

25. [i] [I] [E] 235

[L] [r] 238

[Ø] [t] [š] [s] 241

[p] [f] 244

[p] [t] [s] [f] 247

[sp] [sl] [st] [sk] 250

[s] [spr] [str] [skr] [skw] [spl] 253

D. APPENDIX - FLASH CARDS

ACKNOWLEDGEMENTS

The authors would like to thank Ms. Barbara Thompson, Administrator-in-Charge and Refugee Program Director of Pomona Adult and Vocational Education Program, for her support, understanding, encouragement and guidance in the completion of this project.

Our special thanks go to Yvonne Bias, for her consistently cheerful cooperation in typing out this manuscript.

4

PREFACE

This curriculum was developed as a component of a federally funded refugee project which has offered a program of instruction and services to refugees through Pomona Adult and Vocational Education Program, Pomona Unified School District. To prepare refugees for employment as productive members of the community, a series of six vocational programs were offered. In conjunction with the vocational instruction, English as a Second Language (ESL) and Vocational English as a Second Language (VESL) were required for all students in the program. This curriculum is part of the VESL course for the refugees studying welding.

Because these materials were developed for a specific project, they reflect the exigencies of the welding course at Pomona Adult and Vocational Education Program. To enter this course, students must pass an entry test which evaluates their language skills. Hence, the refugee students are at an intermediate level of English proficiency with corresponding abilities in reading, writing, understanding, and speaking English. In addition, the welding instructor expects all students to read various welding textbooks and to pass welding tests.

Therefore, this guide focuses on several learning goals. First, introduces subtechnical vocabulary which native speakers would be familiar with when they entered the course. Secondly, it emphasizes aural comprehension over oral production. Thirdly, most of the lessons are based on a notional-functional methodology. Language functions and notions which seem to be prominent in the welding field are emphasized. And lastly, reading skills are introduced through the context of the welding process.

However, the curriculum would not be complete without some cultural orientation to the work world. Although this is introduced in only a perfunctory manner in most of the initial chapters of the book, it is not considered unimportant. The last four lessons of the book emphasize the cultural assumptions inherent in successfully obtaining and keeping a job.

LESSON 1

INTRODUCTION TO CLASSROOM PROCEDURE

INTRODUCTION: Students must understand the classroom procedures, norms and basic vocabulary and dialogs used to feel "at home" in the classroom.

PURPOSE: The primary purpose is to help students know and understand classroom procedures, guides and words commonly used to follow instructions.

OBJECTIVES: At the conclusion of this lesson the students will be able to:

1. understand and follow directions regarding classroom procedures.
2. respond to teacher's instructions in the class.
3. verbalize classroom rules.

VOCABULARY: Classroom procedure vocabulary.

MATERIALS: Flash cards, handouts and actual procedures posted around the workshop.

PROCEDURES:

1. Obtain classroom rules from the welding teacher and discuss each of them with the students.
2. Display the flash cards and ask the students to listen carefully to the rules.
3. Handout 1-A. Students should read and repeat the classroom rules until they are able to articulate them.
4. Handout 1-B. Students should fill in the blanks with the appropriate words. They may look at the displayed flash cards for correct spellings. Let the students correct their own papers as you call out the answers.
5. Handout 1-C. Students should practice the dialog by themselves. Finally divide the class into pairs and have the students practice the dialog in pairs.
6. Handout 1-D. Discuss the meanings of words on the verb list. Call upon the students to listen and then repeat.
7. Handout 1-E. Discuss the vocabualry list. Stress pronunciation. Display flash cards and ask each student to explain the importance of each action to the class.

Name:________________________

LESSON 1-A

CLASSROOM RULES

Directions: Repeat these rules after the teacher.

1. No horsing around.
2. Everyone must clean up.
3. Don't be late, be on time.
4. Don't take something which is not yours.
5. Follow all directions carefully.
6. Don't go in "off limit" places.
7. Never use equipment without permission.
8. Always check out welders caps.

LESSON 1-B

RULES

Have the students fill in the blanks.

1. Don't go in "off limit" places.

2. Always wear welders caps.

3. Everyone must clean up.

4. NO horsing around.

5. Don't be late. Be on time.

6. Never use equipment without permission.

7. Don't take something which is not yours.

8. Follow all directions carefully.

Name:____________________________

LESSON 1-B

RULES

Directions: Fill in the blanks.

1. Don't go in "____________________" places.

2. Always ______________________ welders caps.

3. Everyone must ______________________.

4. NO _____________________ around.

5. Don't be ________________. Be on time.

6. Never use _____________________ without permission.

7. Don't take something which is not __________________.

8. Follow all ______________________ carefully.

Name:________________________

LESSON 1-C

Directions: Practice the following dialog with your partner and finally repeat the dialog without referring to the paper.

1. A: Hi! How are you?

   B: Fine thanks. How are you?

2. A: Hi! How's everything?

   B: Not so good. I don't understand how to do this.

   A: Here, let me show you.

3. A: Hi! How are you doing?

   B: Okay. But, I can't do this right.

   A: Here, let me see, perhaps I can help you.

Name: ____________________

LESSON 1-D

BASIC VERBS

Directions: Discuss the meanings of the verbs. Then listen and repeat them after the teacher.

adjust

clamp

clean

cool

fit

hold

lock

loosen

lubricate

mount

move

remove

replace

revolve

screw

slide

tighten

turn

vary

wipe

Name:______________________

LESSON 1-E

Directions: Discuss the following words and then practice the pronunciation with the teacher.

Vocabulary List

to weld
welding
welder

shop
welding station
welding booth

late
early
on time

rules
directions
to follow
to be careful
to horse around

to check in
to check out
to sign in
to sign out
to sign up
sign up sheet

to put up
to put away
to clean up

off limits
no smoking

LESSON 2

BODY PARTS AND CLOTHING

INTRODUCTION:

Welders are exposed to several occupational hazards such as intense heat, flying sparks, toxic fumes, high current electricity and ultr-violet rays. It cannot be stressed enough to develop the right work habits as well as to wear the right clothing to protect vulnerable parts of the body.

PURPOSE:

The purpose of this unit is to:

1. Impress upon the students the importance of protecting their body.

2. Alert the students to the need and importance of wearing the proper clothing while performing welding operations.

OBJECTIVE:

The students will be able to:

1. identify, verbalize and spell different parts of the body.

2. identify clothing and the purpose of clothing items.

VOCABULARY:

The teacher will elicit nouns and verbs already in the vocabualry of the students for reinforcement purposes and stress will be placed on the protective function of these words in the welding occupations.

MATERIALS:

1. Realia (whenever possible)

2. Flashcards

3. Handouts

PROCEDURES:

1. Show the transparency and elicit the names of the parts of the body from the students.

2. Handout 2-B. Students should write the names of body parts on the number lines.

3. Drill names of body parts by having the students identify parts as you point out different parts.

4. Read out sentences from Handout 2-B instructor's sheet, and ask students to provide the correct answers from Handout 2-B, (student's sheet).

5. Use the safety clothing flashcards to introduce the students to the new vocabulary and also when possible use the students clothing as realia pointing out the relationship between the body

part and the clothing. Pay particular attention to the pronunciation.

6. Handout 2-D and have the students circle the clothing they hear in the sentence you read out from the instructor's sheet.

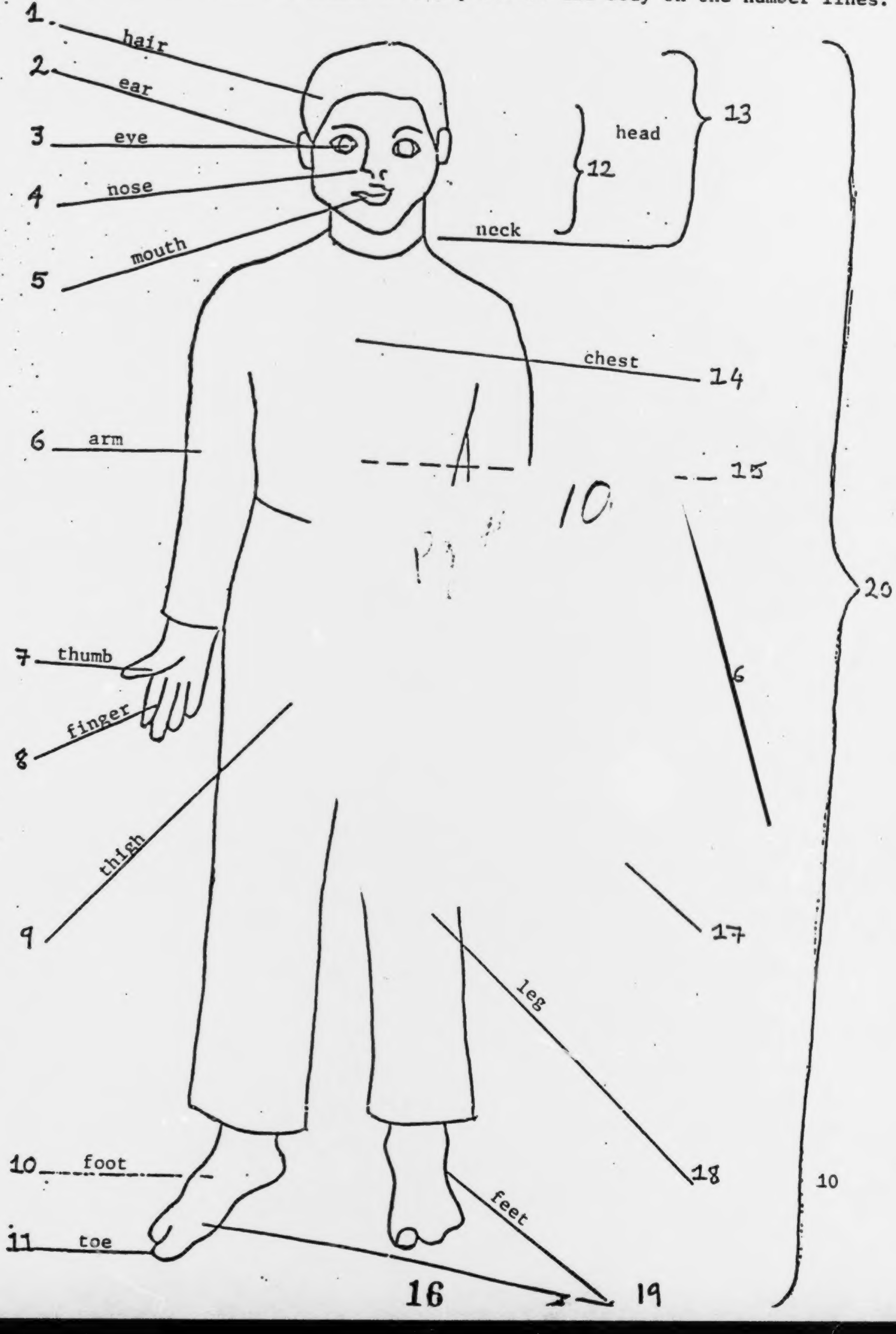
7. Handout 2-E. Students should identify the part of the body they see in the picture and write the name of clothing related to each one.

8. Handout 2-F. Go over the vocabulary list with the students and emphasize the correct pronunciation.

INSTRUCTOR'S SHEET

LESSON 2-B

Have the students write the names of the parts of the body on the number lines.


1. hair
2. ear
3 eye
4 nose
5 mouth
6 arm
7 thumb
8 finger
9 thigh
10 foot
11 toe
head
12
13
neck
chest
14
15
10
6
17
leg
18
feet
19
20
10

LESSON 2-C

The instructor should read each sentence out loud and ask the students to provide the answer from sheet 2-B.

1. On your head you have __________. (hair)

2. You have an __________ on each side of your head. (ear)

3. When we bend our legs we bend our __________. (knees)

4. We can see with our __________. (eyes)

5. On each hand we have five __________. (fingers)

6. Between the eyes and above the mouth is the __________. (nose)

7. You have five __________ on your feet. (toes)

8. You bend your __________ when you bend your arm. (elbow)

9. The __________ are above the knees. (thighs)

10. Your heart is inside your __________. (chest)

INSTRUCTOR'S SHEET

LESSON 2-D

On lesson 2-D students should circle the piece of clothing they hear you read in the following sentences.

1. Put on your welding cap.

2. Where is your jacket?

3. Protect your face with a helmet.

4. Put on your safety glasses before you weld.

5. Put on your apron.

6. Do you have your own gloves?

7. You need to wear a hard hat.

8. Where is your apron?

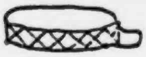
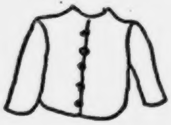
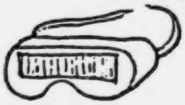
9. The jacket will protect you from flying sparks.

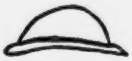
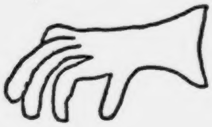
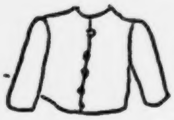
10. You need to have safety glasses.

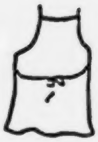
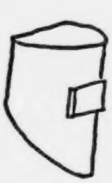
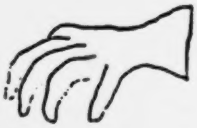
Name: ____________________

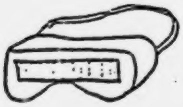
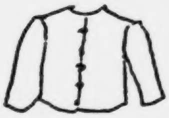
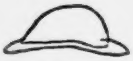
LESSON 2-D

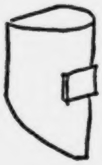
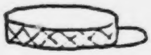
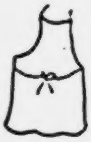
DIRECTIONS: Circle the piece of clothing you hear in the sentence.

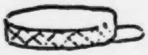
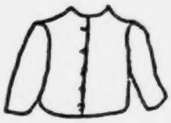
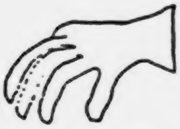




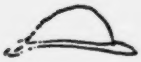
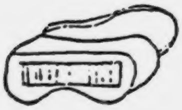
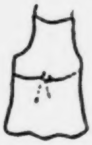




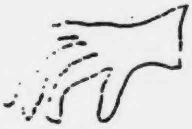
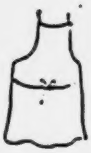
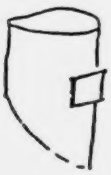




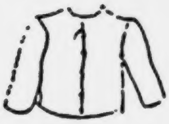
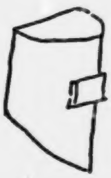
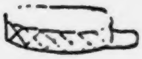




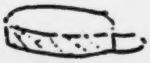
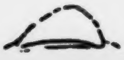
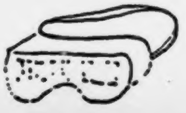




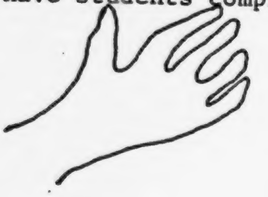




INSTRUCTOR'S SHEET

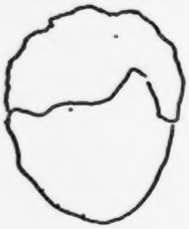
LESSON 2-E

PARTS OF THE BODY

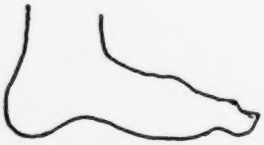
Have students complete Lesson 2-E by filling in the blanks with the correct words.



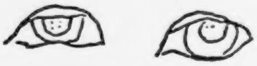
A) hand You protect your hands with gloves.



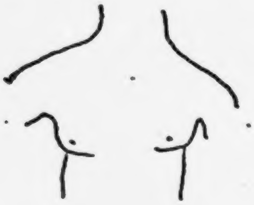
B) face You protect your face with a helmet.



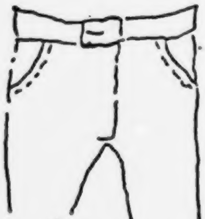
C) feet You protect your feet with boots.



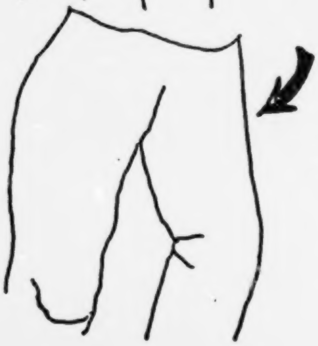
D) eyes You protect your eyes with goggles.



E) chest You protect your chest with a jacket.



F) groin You protect your groin with an apron.



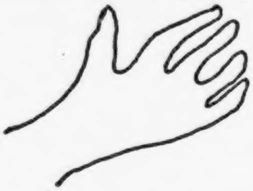
G) thigh You protect your thigh with an apron.

Name:______________________

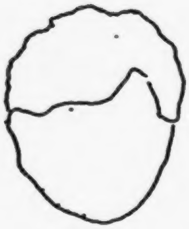
LESSON 2-E

PARTS OF THE BODY

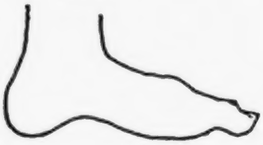
Directions: Fill in the blanks with the correct words.



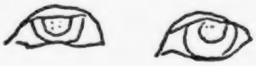
A) _ _ _ _ You protect your ________ with ________.



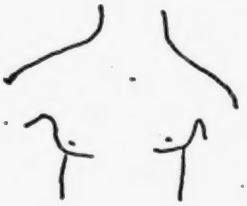
B) _ _ _ _ You protect your ________ with ________.



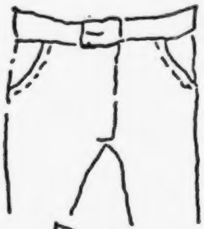
C) _ _ _ _ You protect your ________ with ________.



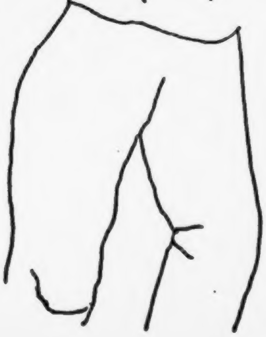
D) _ _ _ _ You protect your ________ with ________.



E) _ _ _ _ You protect your ________ with ________.



F) _ _ _ _ You protect your ________ with ________.



G) _ _ _ _ You protect your ________ with ________.

LESSON 3

SAFETY

INTRODUCTION: People have accidents simply because they are careless or indifferent to safety regulations. Industry places a high premium on safety.

PURPOSE: The primary purpose of this lesson is to alert the students to some general precautions which should be taken while performing various welding operations.

OBEJCTIVE: The objectives of this unit are:

1. To familiarize students with welding safety vocabulary.
2. To prepare for the safety test.
3. To learn safety related words.
4. To understand and heed warnings.

VOCABULARY: Nouns and verbs which describe, report and resolve unsafe situations.

MATERIALS:

1. Flashcards
2. Handouts

PROCEDURES:

1. Present danger vocabulary with the help of the five flashcards entitled: fire, light, electricity, air and lifting. Emphasize the correct pronunciation.
2. Lesson 3-B. Discuss the action to be taken in each danger situation. Use the flashcards to introduce warning vocabulary. Use Handout 3-B to drill the same imperatives.
3. Discuss with students how they would respond to each warning and have them complete Handout 3-C.
4. Handout 3-D and have the students spot the hazards in the picture and then take turns in issuing warnings to the man in the picture.

LESSON 3-A

SAFETY FLASHCARDS - SAFETY

Look at the flashcards and associate the pictures with the appropriate vocabulary.

I. For Presentation of Vocabulary and Concepts

A. Fire
- Fire (smoke)
- Flame
- Spark
- Flammable
- Explosion
- Burn
- Ignite
- Fire extinguisher

B. Light
- Beach scene
- Flare
- Sunburn/flashburn
- Look directly at
- Shield
- To be blind (blinder)

C. Electricity
- Plug
- Cord
- Worn cord
- Outlet
- To stand in water
- An electric shock

D. Ventilator
- Ventilation/fan
- Toxic fumes
- Poor ventilation

E. Lifting
- To lift (a heavy object)
- Back injury

Name:____________________

LESSON 3-B

WARNINGS

Directions: Repeat the following warnings and match them with the flashcards.

1. Don't smoke!
2. Don't wear cuffs!
3. Don't stand in water!
4. Don't wear canvas shoes!
5. Don't wear oily clothes!
6. Protect your eyes!
7. Protect your hands!
8. Protect your feet!
9. Wear goggles!
10. Wear a jacket!
11. Wear an apron!
12. Put on your helmet!
13. Put on your boots!
14. Turn on the fan!
15. Turn off the machine!
16. Let the cord drop to the floor!
17. Stop!
18. Hold it!
19. Don't
21. Look out!

LESSON 3-C

SAFETY WARNINGS

Repeat the following exclamations.

1. Look out!
2. Don't!
3. Watch out!
4. Stop!
5. Don't touch!
6. Hold it!
7. Fire!
8. Turn it off!
9. Accident!
10. Switch it off!

Put the above exclamations in the correct box.

STOP!	LOOK!	GET HELP!	DO ACTION!
Don't! Stop! Don't touch! Hold it!	Look out! Watch out!	Fire! Accident!	Turn it off! Switch it off!

Name:______________________________

LESSON 3-C

SAFETY WARNINGS

A. Directions: Repeat the following exclamations.

1. Look out!
2. Don't!
3. Watch out!
4. Stop!
5. Don't touch
6. Hold it!
7. Fire!
8. Turn it off!
9. Accident!
10. Switch it off!

Directions: Put the above exclamations in the correct box.

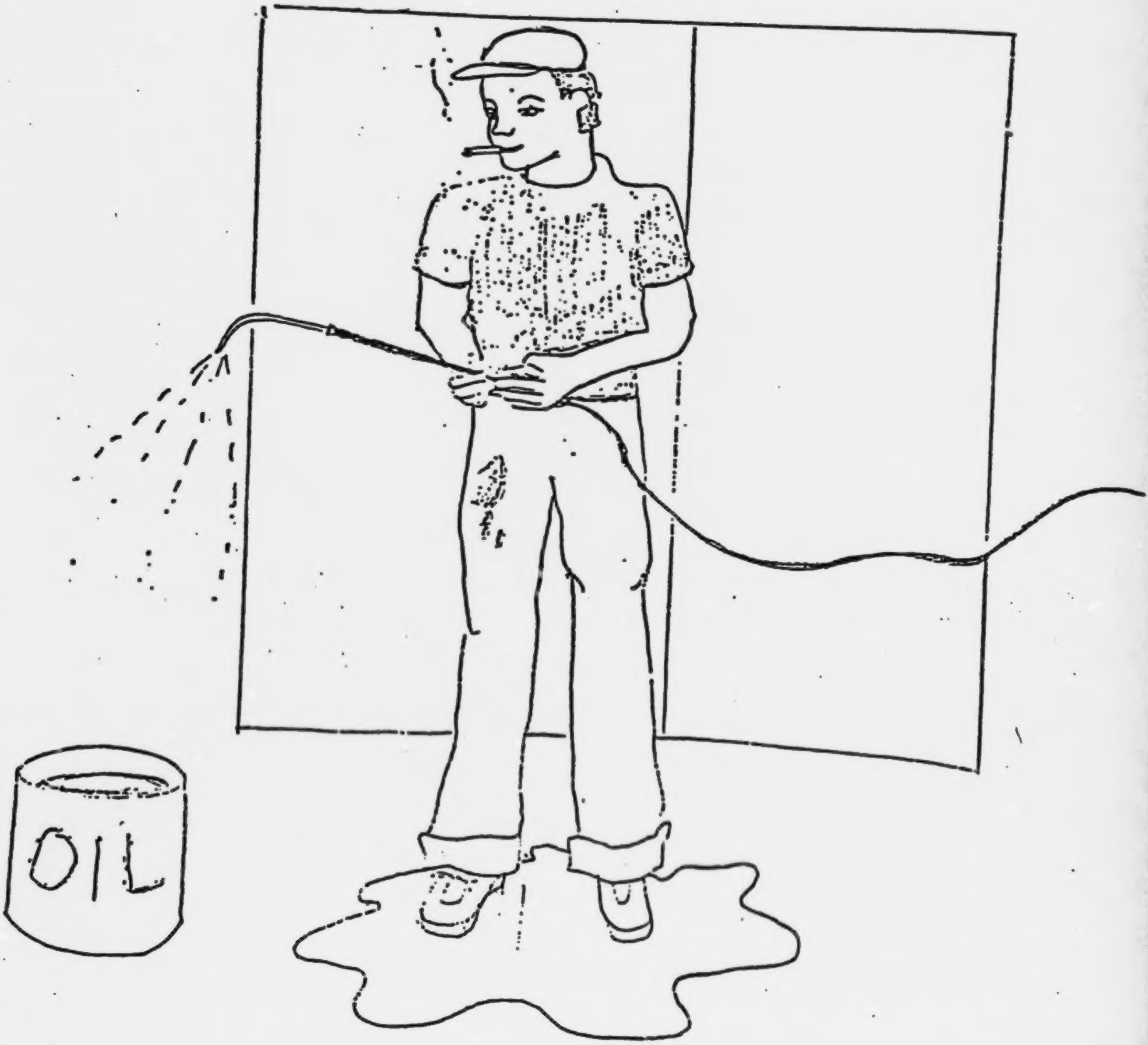
STOP!	LOOK!	GET HELP!	DO ACTION!

Name:__________________________

LESSON 3-D

WHAT'S WRONG?

Directions: Spot the hazard in the picture and then issue warnings to the man in the picture.



LESSON 4

WELDING TOOLS

INTRODUCTION: In order to communicate effectively the welding student needs to become familiar with the tools, their names, shapes and functions.

PURPOSE: The purpose of this lesson is to have the student get acquainted with basic hand tools used in welding.

OBJECTIVE: The objectives of this unit are:

1. to identify basic hand tools.
2. to sign out tools from the tool-crib.

VOCABULARY: Nouns used in identifying and describing tools.

MATERIALS:

1. Realia
2. Handouts

PROCEDURES:

1. Collect tools from the tool-crib in the welding shop and have students repeat the name of each one as you hold it up.
2. Drill further with flashcards. Then spread out the cards on the desk and ask each student to come forward and identify at least five tools. The rest of the class should act as teacher and watch for mistakes.
3. Hand out 4-A and reinforce tool vocabulary.
4. Hand out 4-B. Students should write the names of tools under the appropriate pictures.
5. Display realia again and have every student ask another student for a specific tool.
6. Hand out 4-C. Students should work in pairs and practice the minilogs.
7. Discuss different parts of tools like handles, tips, blades, jaws and threads and have the students point them out in the classroom realia. Distribute Handout 4-D.
8. Have students work on Handout 4-E for spelling practice. They may refer to Handout 4-A at this stage.

9. Hand out 4-F. Students should circle the tool they hear in the sentence.

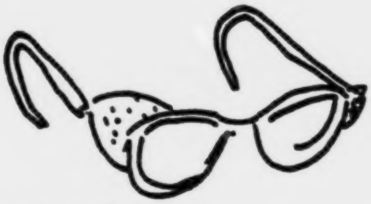
10. Handout 4-G is for listening and reading comprehension. The students should circle the name of the tool they hear in the sentence.

11. Handout 4-H is for listening comprehension and spelling practice. Students should fill in the blank space with the tool name they hear in the sentence.

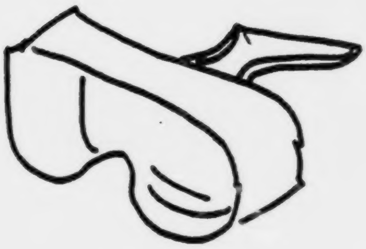
Name______________________

LESSON 4-A

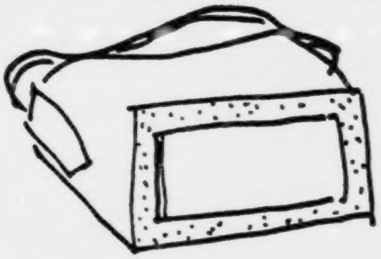
Directions: Identify the tools with their names.



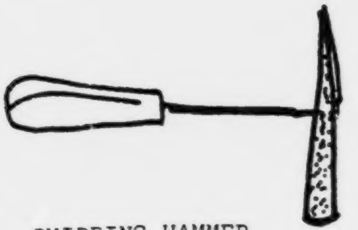
SAFETY GLASSES



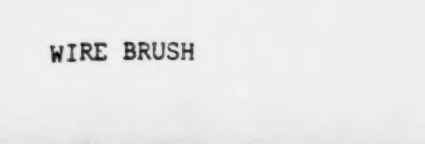
CLEAR GOGGLES



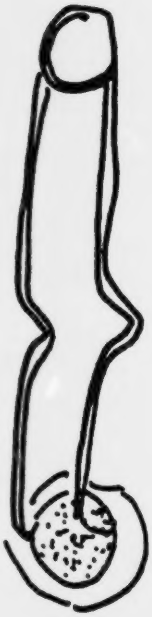
GAS WELDING GOGGLES



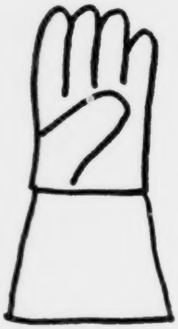
CHIPPING HAMMER



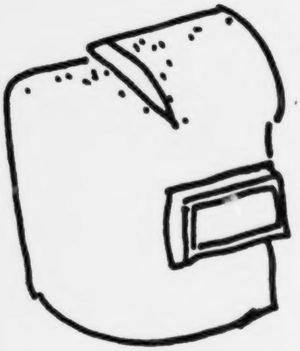
WIRE BRUSH



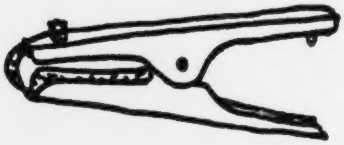
STRIKER OR SPARK LIGHTER



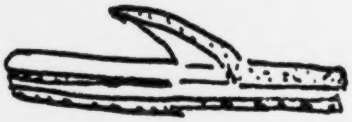
GLOVES



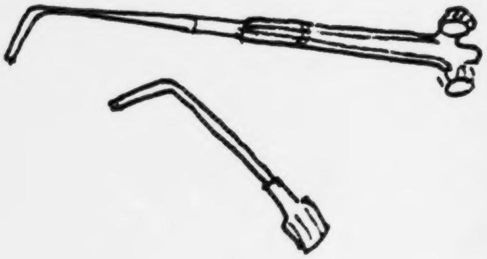
HELMET



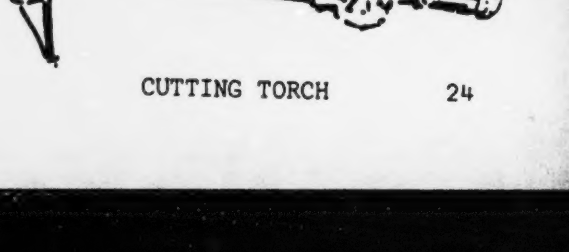
GROUND CLAMP



ELECTRODE HOLDER



OXY-ACETYLENE TORCH AND TIPS

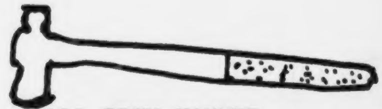


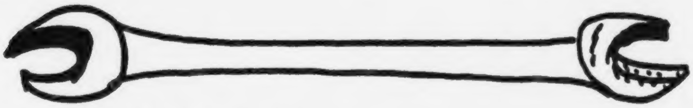
CUTTING TORCH

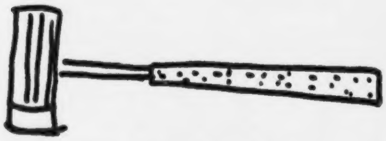
Name:____________________________

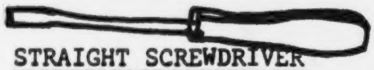
LESSON 4-A (cont'd)

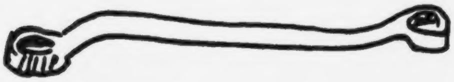
COMBINATION WRENCH

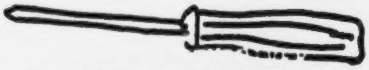

BALL PEEN HAMMER

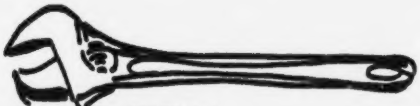

OPEN-END WRENCH

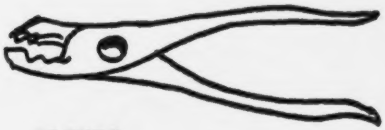

SOFT FACE HAMMER

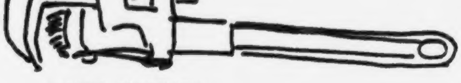

STRAIGHT SCREWDRIVER

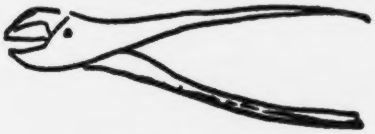

BOX WRENCH

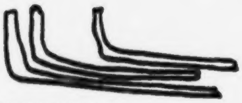

PHILLIPS SCREWDRIVER

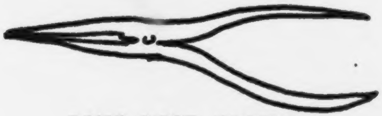

CRESENT WRENCH

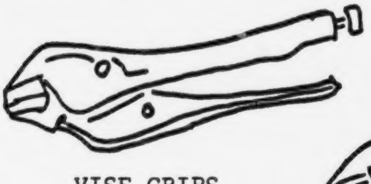

PLIERS

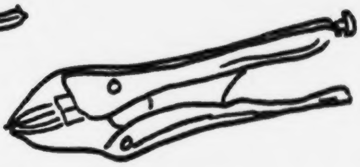

PIPE WRENCH

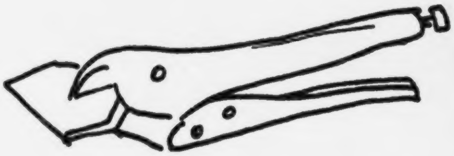

DIAGONAL CUTTERS (DIKES)

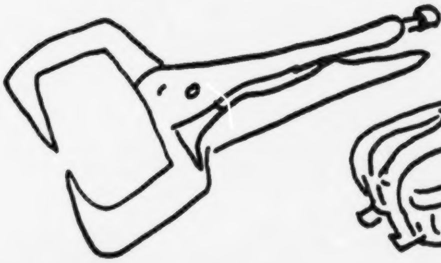

ALLEN WRENCHES

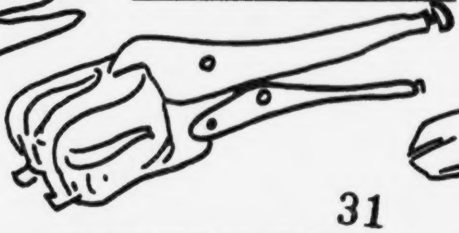

LONG NOSE PLIERS

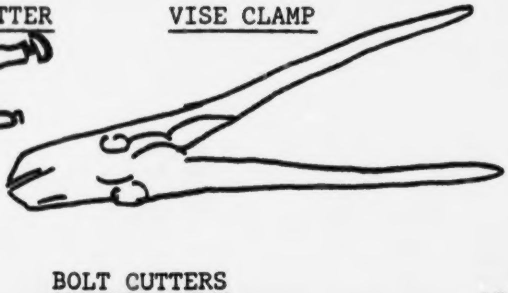

VISE GRIPS


VISE GRIPS WITH CUTTER


VISE CLAMP

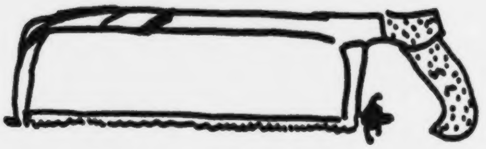

VISE GRIP C-CLAMP

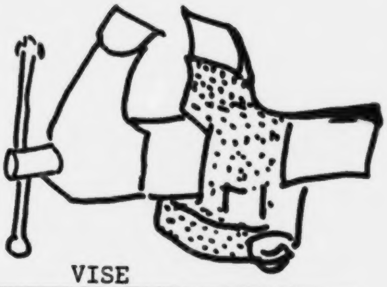

WELDER'S VISE GRIPS

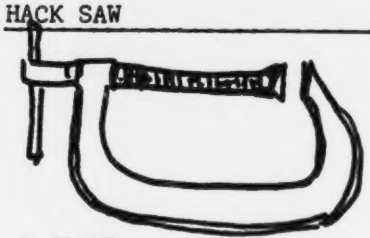

BOLT CUTTERS

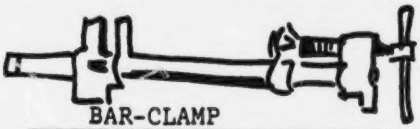
NAME:

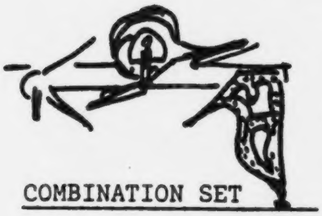
LESSON 4-A (Cont'd)

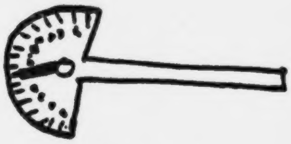

HACK SAW

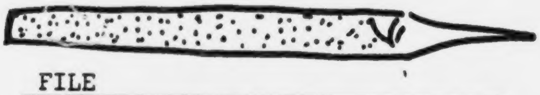

VISE

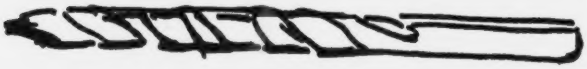

C-CLAMP

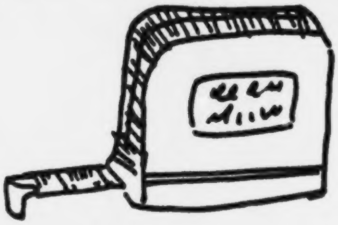

BAR-CLAMP

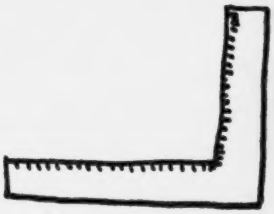

COMBINATION SET

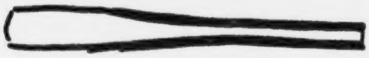

PROTRACTOR

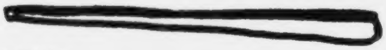

FILE

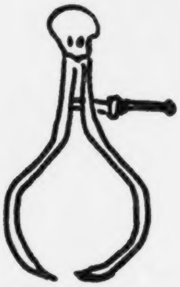

DRILL BIT

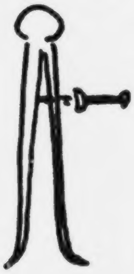

TAPE MEASURE

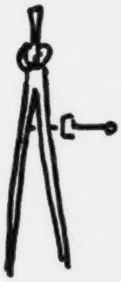

FRAMING SQUARE

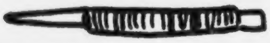

CHISEL

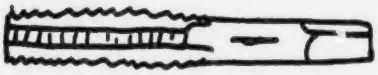

PUNCH

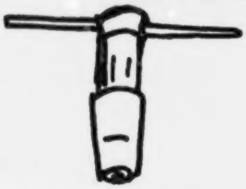

OUTSIDE CALIPER

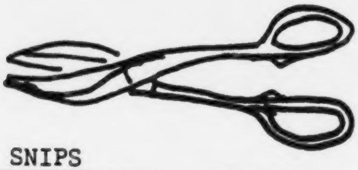

INSIDE CALIPER

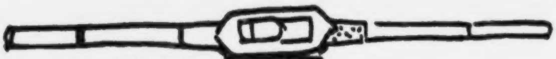

DIVIDER

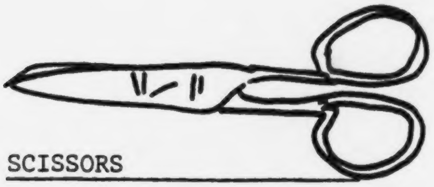

CENTER PUNCH

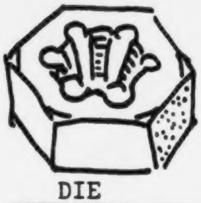

TAP

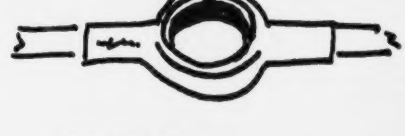

TAP WRENCH


TIN SNIPS


TAP HANDLE


SCISSORS


DIE


DIE STOCK

Name:______________________

LESSON 4-B

Directions: Write these names under the correct pictures on the next two pages.

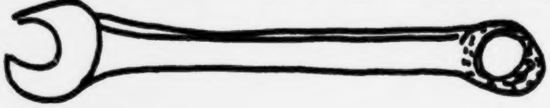
ball peen hammer
gloves
vise
open-end wrench outside caliper
c-clamp
helment
pliers
regular (straight) screwdriver
bolt butters
chipping hammer
safety glasses
clear goggles
clear goggles
tape measure
box wrench
scissors
punch
drill bit
wire brush
soft face hammer (mallet)
pipe wrench
diagonal cutters (cutting pliers)
striker
torch and tips
protractor
tin snips
tap wrench

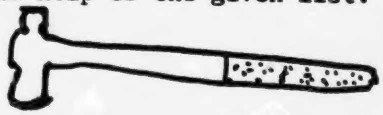
cutting torch
tap
file
electrode holder
die
allen wrenches
vise grips
welder's vise grips
framing square
bar clamp
die stock
tap handle
combination set
vise grips with cutters
gas welding goggles
inside caliper
center punch
vise clamp
long nose pliers
phillips screwdriver
combination wrench
hacksaw
vise grip c-calmp
crescent wrench
ground clamp
combination set
chisel

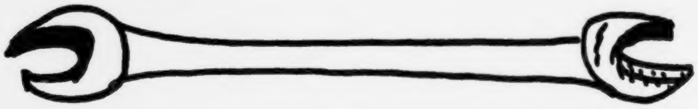
NAME: ____________________

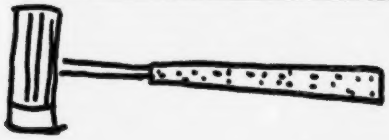
LESSON 4-B (Cont'd)

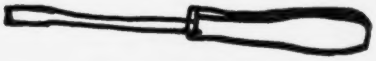
Directions: Write the names of the tools with the help of the given list.

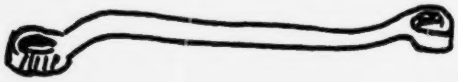


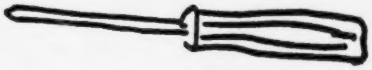


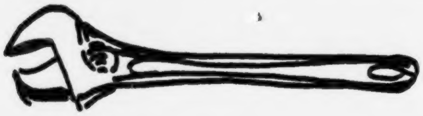


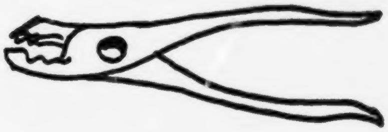


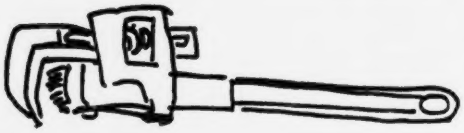


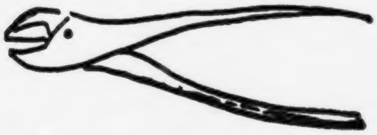


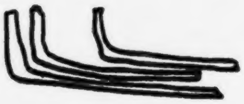


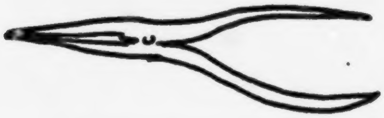


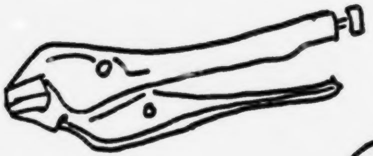


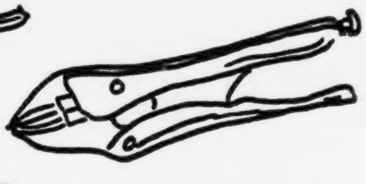


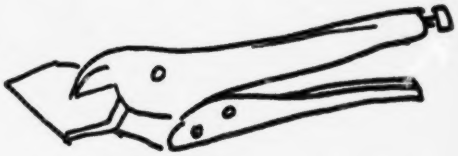


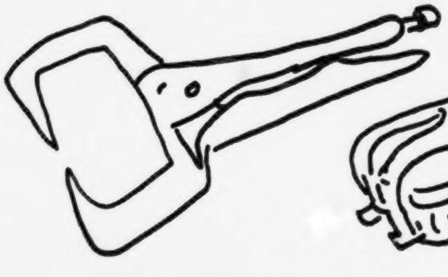


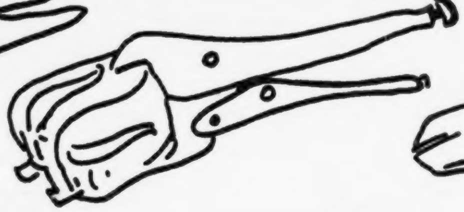


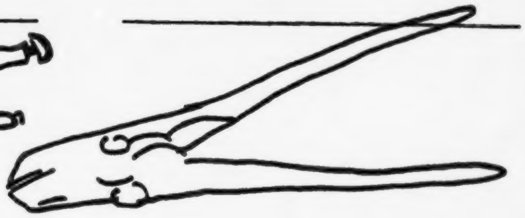






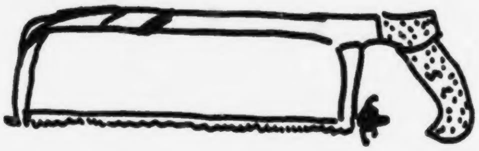


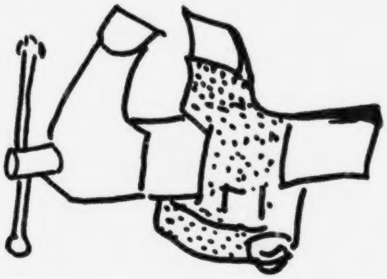


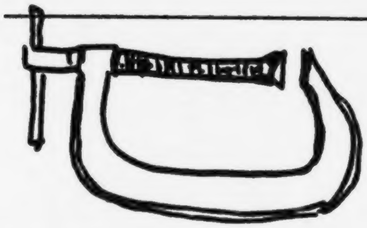


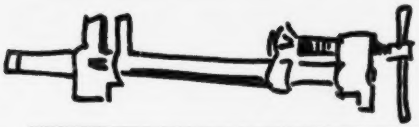
NAME: ______________________

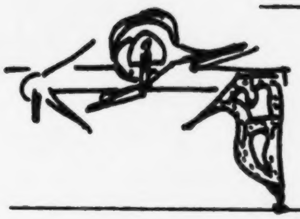
LESSON 4-B (cont'd)

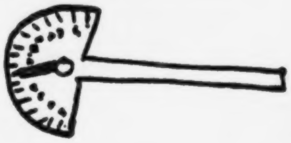


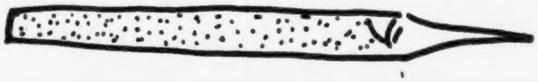


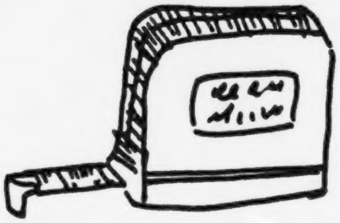


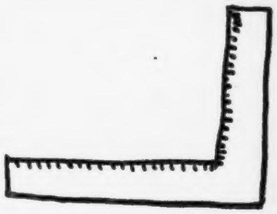


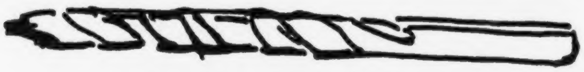


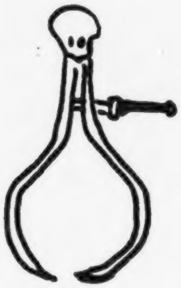


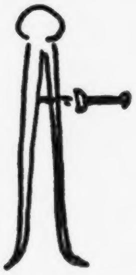


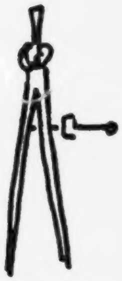


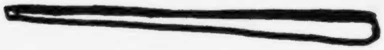


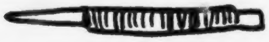


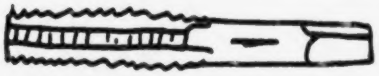


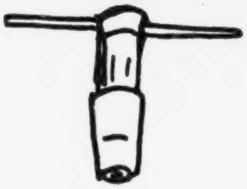


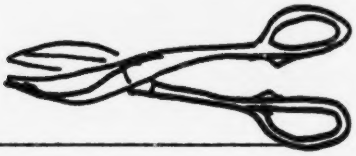


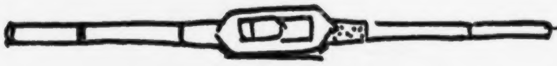


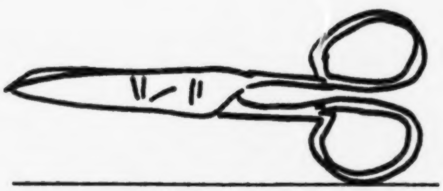


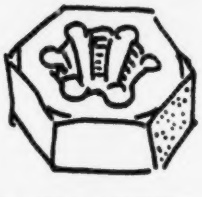


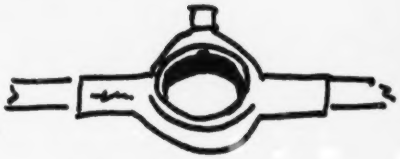












Name:____________________

LESSON 4-C

Directions: Practice the dialog with a partner.

MINILOGS

I. A: What do you need?

B. I need a ______________.
some ______________.

A: I don't have one
any now.

B: OK. I'll come back later.
in 5 minutes.
in a while.

II. A: Do you have a ______________?

B: Yes.

A: Can I borrow it
them ?

B: Sure.

A: Where is it
Where are they ?

B: On the bench.
floor.
table.

A: I'll put it
them back when I've finished.
I'm through.
in a minute.

ballpeen hammer
chipping hammer
file
wire brush
lighter
wrench

pliers
tip cleaners
tongs

Name:____________________

LESSON 4-D

WELDING TOOL - REVIEW

Directions: Write these objects under the correct groups. One tool can be in more than one group.

screws
screwdrivers
slip-joint pliers
hacksaws
vises
scissors
bolts

wrenches
hammers
welding torches
wire brushes
brooms
dustpans
nuts

have tips

have blades

have handles

tighten and loosen

have jaws

have threads

INSTRUCTOR'S SHEET

LESSON 4-E

WELDING TOOLS

Fill in the blanks to name some welding tools.

1. phillips screwdriver
2. striker
3. scale
4. tape measure
5. combination wrench
6. hacksaw
7. chipping hammer
8. tip cleaners

Name:________________________

LESSON 4-E

WELDING TOOLS

Directions: Fill in the blanks to name some welding tools.

1. ___ h ___ l ___ ___ ___ ___ ___ c ___ ___ ___ d ___ ___ ___ e ___

2. ___ t ___ ___ k ___ ___

3. ___ c ___ l ___

4. ___ ___ p ___ ___ e ___ s ___ ___ e

5. ___ ___ m ___ ___ n ___ ___ i ___ ___ ___ r ___ ___ c ___

6. ___ a ___ k ___ a ___

7. ___ h ___ p ___ ___ n ___ ___ ___ m ___ ___ r

8. ___ i ___ ___ l ___ a ___ ___ r ___

LESSON 4-F

TOOL IDENTIFICATION

Read out the following sentences to the students. Have them circle the appropriate picture of the tool they hear you say in the sentence.

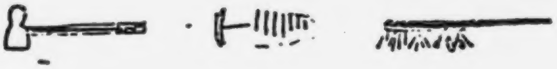
1. Get me a ball peen hammer.
2. Get me square pliers.
3. I need a wrench.
4. I need a screwdriver.
5. Where are the tongs?
6. Give me the lighter.
7. Where's the tape measure?
8. I need the broom.
9. Do you have a file?
10. Do you have a hacksaw?
11. Can I borrow your cleaning tips?
12. Can I borrow a chipping hammer?
13. Hand me the tongs.
14. Hand me the hammer.
15. Hand me the wire brush.

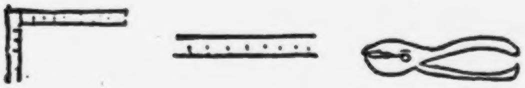
Name:______________________

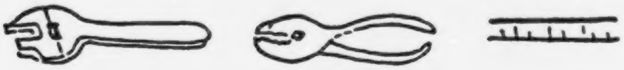
LESSON 4-F

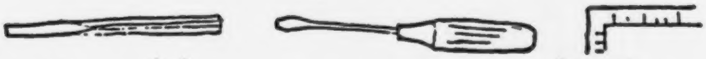
TOOL IDENTIFICATION

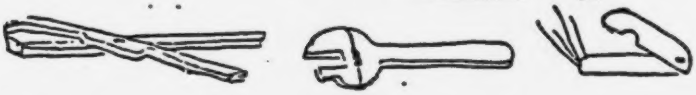
Directions: Circle the picture of the tool you hear the teacher say in the sentence.

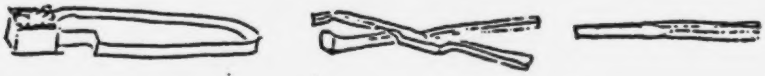


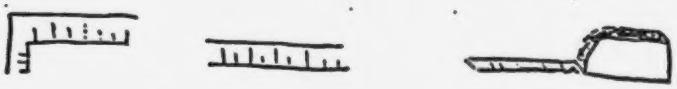


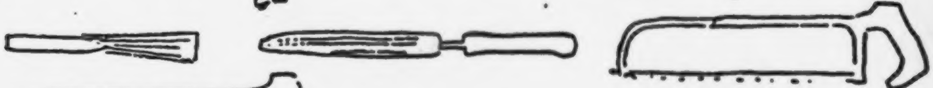


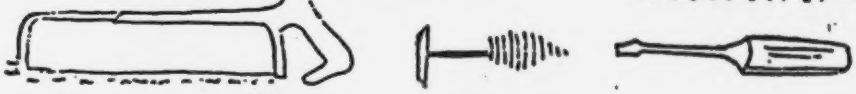


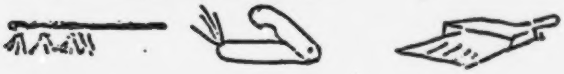


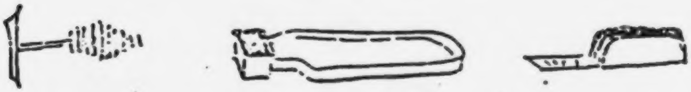


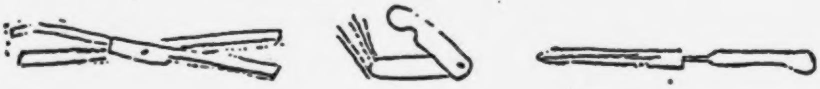


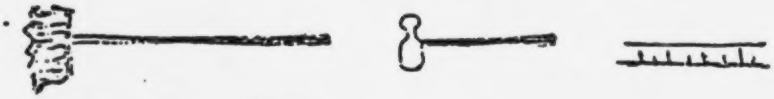


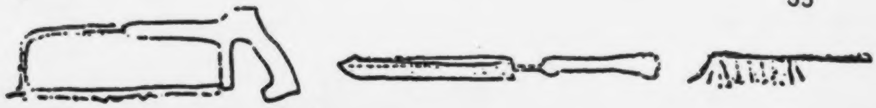












INSTRUCTOR'S SHEET

LESSON 4-G

WELDING TOOLS

Read out the following sentences to the students. Have them circle the name of the tool on their paper.

1. I need a ruler.
2. I need a chipping hammer.
3. Pass me the Crescent Wrench.
4. Where is the regular screwdriver?
5. Hand me the C-clamp.
6. I need a file.
7. Get me the brush.
8. I want a dust-pan.
9. Pass me the spark lighter.
10. I need a square.

Name:__________________________

LESSON 4-G

WELDING TOOLS

Directions: Circle the name of the tool you hear the teacher say in the sentence.

1. a) scale b) ruler c) square
2. a) chipping hammer b) ball peen hammer c) tape measure
3. a) open end wrench b) combination wrench c) crescent wrench
4. a) phillips screwdriver b) regular screwdriver c) pliers
5. a) c-clamp b) box wrench c) pliers
6. a) striker b) file c) tongs
7. a) wirebrush b) brush c) broom
8. a) locker b) lock c) dust-pan
9. a) tip cleaners b) tape measure c) spark lighter
10. a) square b) striker c) file

LESSON 4-H

WELDING TOOLS

Read out the following sentences to the students. Have them write the names of the tools in the blanks, on their sheets.

1. Get me a chipping hammer.
2. Get me the pliers.
3. Hand me a regular screwdriver.
4. Hand me a C-clamp.
5. Pass me some tip cleaners.
6. Pass me some wrenches.
7. Get me a combination wrench.
8. Get me a box wrench.
9. I need a hacksaw.
10. I want a wire brush.

Name:______________________

LESSON 4-H

WELDING TOOLS

Directions: Fill in the blanks with the name of the tool you hear in the sentence your teacher reads out.

1. Get me a ______________________.

2. Get me some ______________________.

3. Hand me a ______________________.

4. Hand me a ______________________.

5. Pass me some ______________________.

6. Pass me some ______________________.

7. Get me a ______________________.

8. Get me a ______________________.

9. I need a ______________________.

10. I want a ______________________.

LESSON 5

WELDING TOOL ACTIONS

INTRODUCTION: Students need to recognize and manipulate common verbs used with tools and functions of tools.

PURPOSE: The purpose of this lesson is that students become familiar with function and action vocabulary of tools and also be able to generate simple structures with it.

OBJECTIVE: The objectives of this lesson are:

1. to be able to describe the function of each tool.
2. to be able to classify action structures and use them to communicate effectively.

VOCABULARY: Verbs and adjectives used to describe actions and functions.

MATERIALS:

1. Realia
2. Handouts

PROCEDURE:

1. Handout 5-A. Discuss the function of each tool. As a review give each student a function and have them respond with the name of the tool.
2. Handout 5-B is an additional exercise in the function of tools. Discuss it with students.
3. Handout 5-C. Students should match the words to the sentences in the two lists. They should take turns in discussing the answers given.
4. As a final reinforcement exercise student should write the answers on Handout 5-D. Collect and correct it from the instructor's sheet.

Name:________________________

LESSON 5-A

Directions: Discuss the work of each tool.

Tools	What To Do With A Tool	To What
scale/ruler square tape measure	measures	material iron steel wood
chipping hammer ball peen hammer	cleans ships strikes hits	slag work steel iron
open end wrench box wrench combination wrench crescent wrench	grips loosens tightens	nuts bolts work
phillips screwdriver regular screwdriver	turns______in turns______out loosens tightens	screws
tongs pliers c-clamp	hold cut holds (work) in place	hot metal hot material work
hacksaw file	cuts files	material work
striker/spark lighter	ignites lights strikes	torch
tip cleaners wire brushes	clean clean	holes gas welding tip work
broom	cleans sweeps	floors work area
brush dust pan	collects	scrap metal

Name:____________________________

LESSON 5-B

FUNCTION OF TOOLS

Directions: Discuss the functions of these tools.

ballpeen hammer - used for hammering and bending metal

bandsaw - cuts pipes or small materials

chipping hammer - for chipping slag off of welded metal

chisel - used for removing slag and cutting metal

flux - substance applied to the metal to remove oxides and other contamination prior to welding

grinder - soothes rough edges on metal plates usually before welding

ground clamp - attached to work bench or plate to ground the work plates

iron worker - cuts backing strips, small pieces of metal; punches holes

metal shear - cuts thick pieces of metal

side cutters - usually used for cutting MIG wire

tip cleaners - cleans tips of welding torches

tongs - used to carry hot materials from one work area to another

torch lighter - a friction lighter used to ignite a gas flame

wire brush - used to clean a welded area

wire buffer - attachment for the grinder; buffs metal

INSTRUCTOR'S SHEET

LESSON 5-C

WELDING TOOLS/VERBS

Have the students match the sentences in list A to sentences in list B.

LIST A	LIST B
Get me a ruler.	I need to sweep the floor.
Get me a broom	I need to chip this slag off.
Get me some tip cleaners.	I need to hold this hot metal.
Get me a chipping hammer.	I need to cut this pipe.
Pass me a regular screwdriver.	I need to measure this pipe.
Pass me some pliers.	I need to tighten the nut.
Pass me a hacksaw.	I need to clean the tip.
Pass me a box wrench.	I need to loosen this screw.
Hand me the striker.	I need to ignite the torch.
Hand me the wire brush.	I need to collect the scraps.
Hand me a c-clamp.	I need to clean this work.
Hand me a ball peen hammer.	I need to turn the screw in.
Where's the dust pan?	I need to file this corner.
Where's the file?	I need to hit this iron.
Where's the phillips screwdriver?	I need to hold this metal in place.

Name:______________________

LESSON 5-C

WELDING TOOLS/VERBS

Directions: Match the words in List A to the correct words in List B.

LIST A

Get me a ruler.

Get me a broom.

Get me some tip cleaners.

Get me a chipping hammer.

Pass me a regular screwdriver.

Pass me some pliers.

Pass me a hacksaw.

Pass me a box wrench.

Hand me the striker.

Hand me the wire brush.

Hand me a c-clamp.

Hand me a ball peen hammer.

Where's the dust pan?

Where's the file?

Where's the phillips screwdriver?

LIST B

I need to sweep the floor.

I need to chip this slag off.

I need to hold this hot metal.

I need to cut this pipe.

I need to measure this pipe.

I need to tighten the nut.

I need to clean the tip.

I need to loosen this screw.

I need to ignite the torch.

I need to collect the scraps.

I need to clean this work.

I need to turn the screw in.

I need to file this corner.

I need to hit this iron.

I need to hold this metal in place.

LESSON 5-D

WELDING TOOLS

Have the students fill in the blanks with the names of correct tools.

1. I want to measure this piece of iron.
   Get me a ruler.
2. I need to chip this slag from my work.
   Get me a chipping hammer.
3. I need to tighten this bolt.
   Get me a screwdriver.
4. I want to loosen this screw.
   Pass me a wrench.
5. I want to hold this work in place.
   Pass me a c-clamp.
6. I need to cut this pipe.
   Pass me a hacksaw.
7. We need to file this corner.
   Hand me a file.
8. I need to clean the gas welding tip.
   Hand me some tip cleaners.
9. I need to carry this hot metal.
   Pass me some tongs.
10. I want to ignite the torch.
    Get me a striker..

Name:________________________

LESSON 5-D

WELDING TOOLS

Directions: Fill in the blanks with names of the correct tools.

1. I want to measure this piece of iron.
   Get me a ________________.

2. I need to chip this slag from my work.
   Get me a ________________.

3. I need to tighten this bolt.
   Get me a ________________.

4. I want to loosen this screw.
   Pass me a ________________.

5. I want to hold this work in place.
   Pass me a ________________.

6. I need to cut this pipe.
   Pass me a ________________.

7. We need to file this corner.
   Hand me a ________________.

8. I need to clean the gas welding tip.
   Hand me some ______________.

9. I need to carry this hot metal.
   Pass me some______________.

10. I want to ignite the torch.
    Get me a ________________.

LESSON 6

ARC WELDING STATION

INTRODUCTION:

Welding is the process in which metal pieces are joined by heating them to a suitable temperature to cause them to melt and fuse together into a single piece. This may be done with or without the application of pressure and with and without the use of filler metal. To do this the welder needs a special area which is called either a booth or a station.

PURPOSE:

The students need to become familiar with the vocabulary and structures related to the arc welding station.

OBJECTIVES:

The objectives are:

1. to familiarize the students with the components of the arc welding station.

2. to learn prepositional structures and spatial relations.

VOCABULARY:

Nouns, verbs and prepositions related to arc welding.

MATERIALS:

1. Realia (take the students to a booth in the welding shop)

2. Flashcards

3. Handouts

PROCEDURE:

1. Explain to the students that there are several types of welding processes. Arc and gas are the two kinds that dominate the field. Shielded metal arc welding (SMAW) is also known as stick electrode welding. An electric arc provides heat, and the metal from an electrode is added to the weld puddle. When the molten mass cools it solidifies into one solid piece.

2. Take the students to the arc welding booth and have the students give you the names of the tools and equipment in the booth.

3. Distribute Handout 6-A and write the vocabulary on the chalkboard. Have each student repeat the words. Stress correct pronunciation. Use the flashcards to review these words.

4. Handout 6-B and let the students work on the word search. Discuss the words: diagonal; horizontal; and vertical.

5. Give the students a few minutes of study time and then give Handout 6-C as a spelling test.

6. Introduce the prepositional structures:
   a) its on

   b) its under

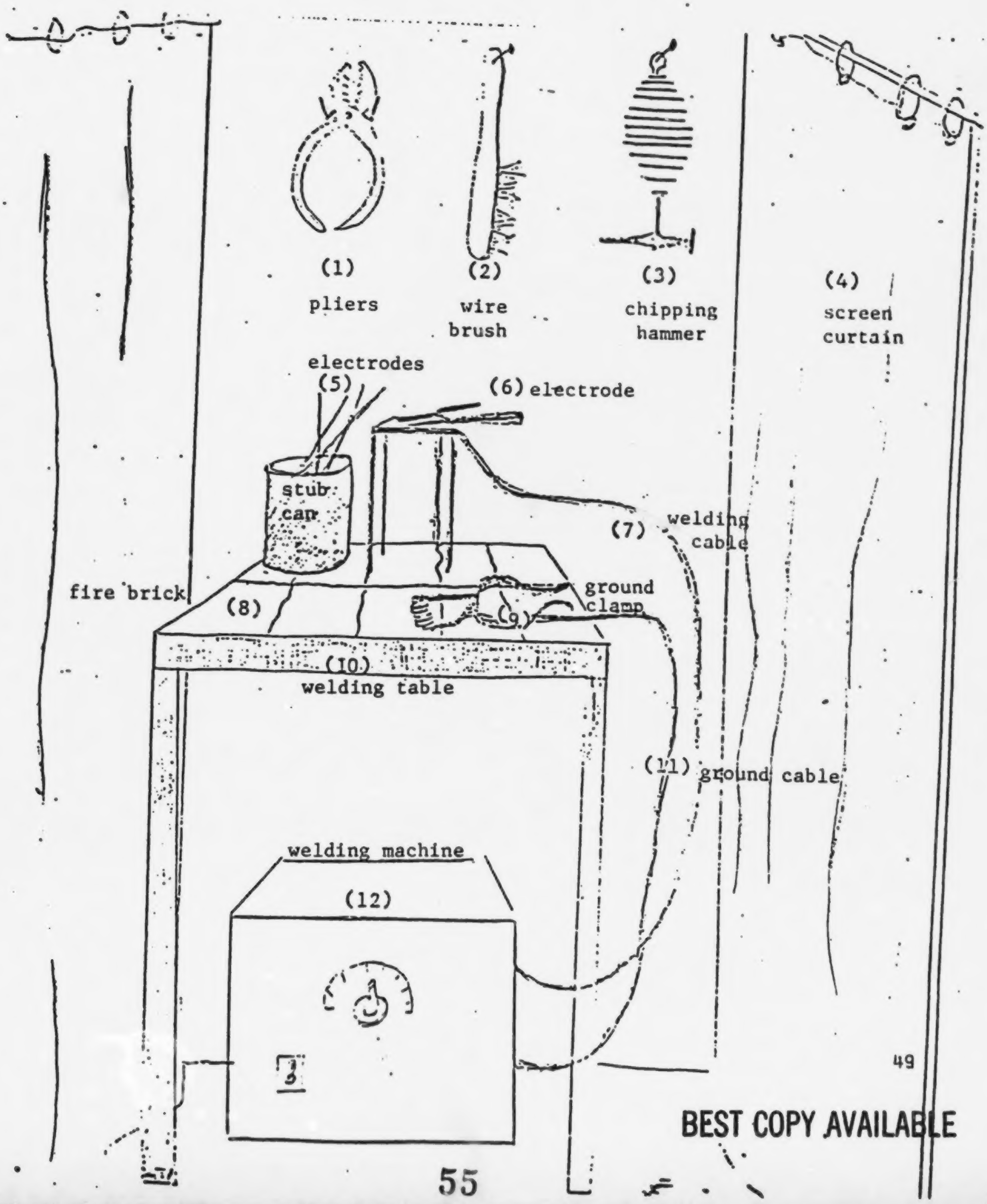
   c) its next to

   Drill them with quesitons using props for eg. Where's the chalk? Where's the brush? Where's the electrode?

7. Handout 6-D and practice further with the prepositional structures.

LESSON 6-A

Have the students write the names of the arc welding station tools under the pictures.


(1)
pliers
(2)
wire brush
(3)
chipping hammer
(4)
screen curtain
electrodes
(5)
(6) electrode
stub can
(7) welding cable
fire brick
(8)
ground clamp
(9)
(10)
welding table
(11) ground cable
welding machine
(12)

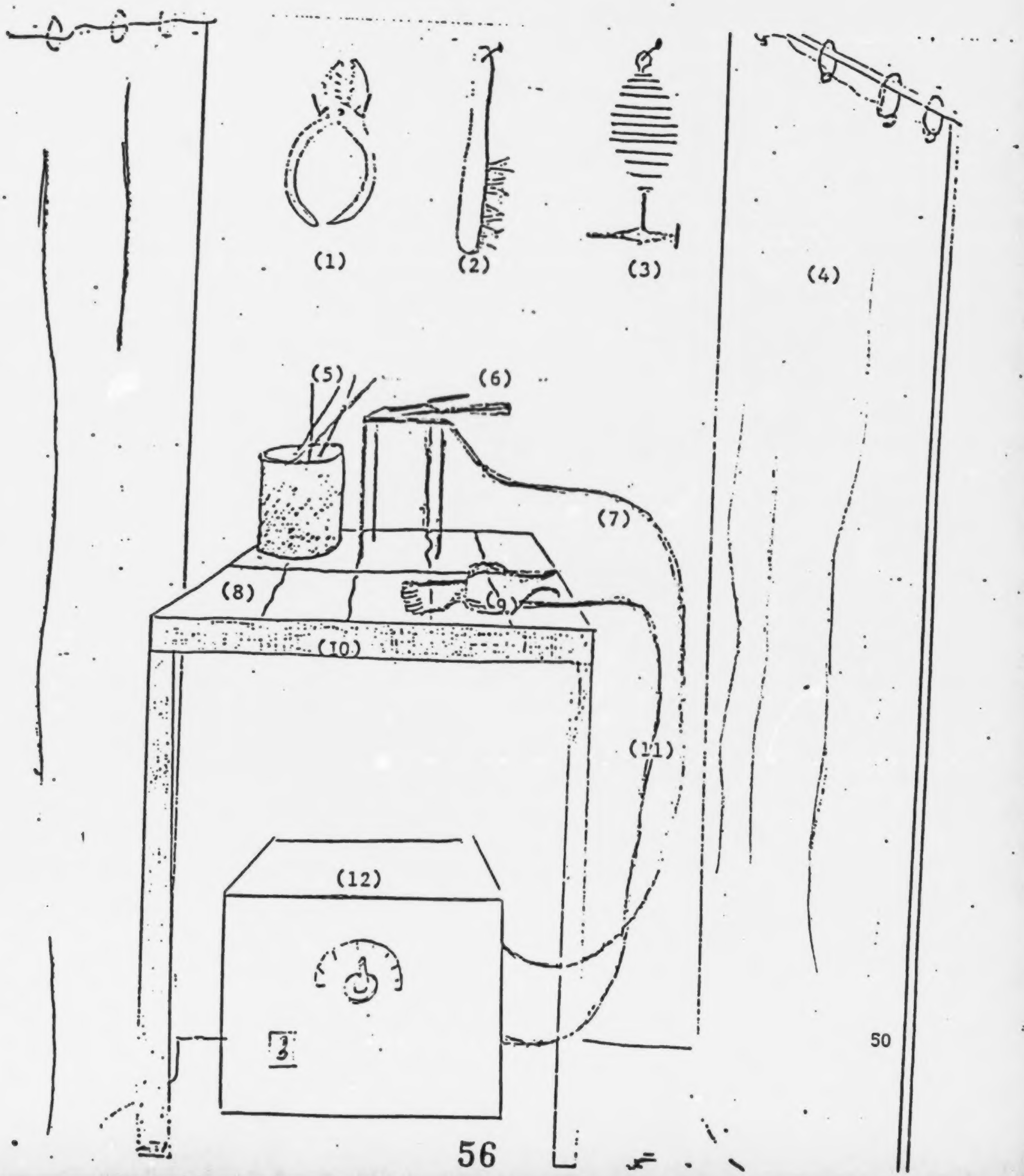
BEST COPY AVAILABLE

BEST COPY AVAILABLE

Name:____________________________

LESSON 6-A

Directions: Identify the tools in the arc welding station.


(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)
(9)
(10)
(11)
(12)

50

INSTRUCTOR'S SHEET

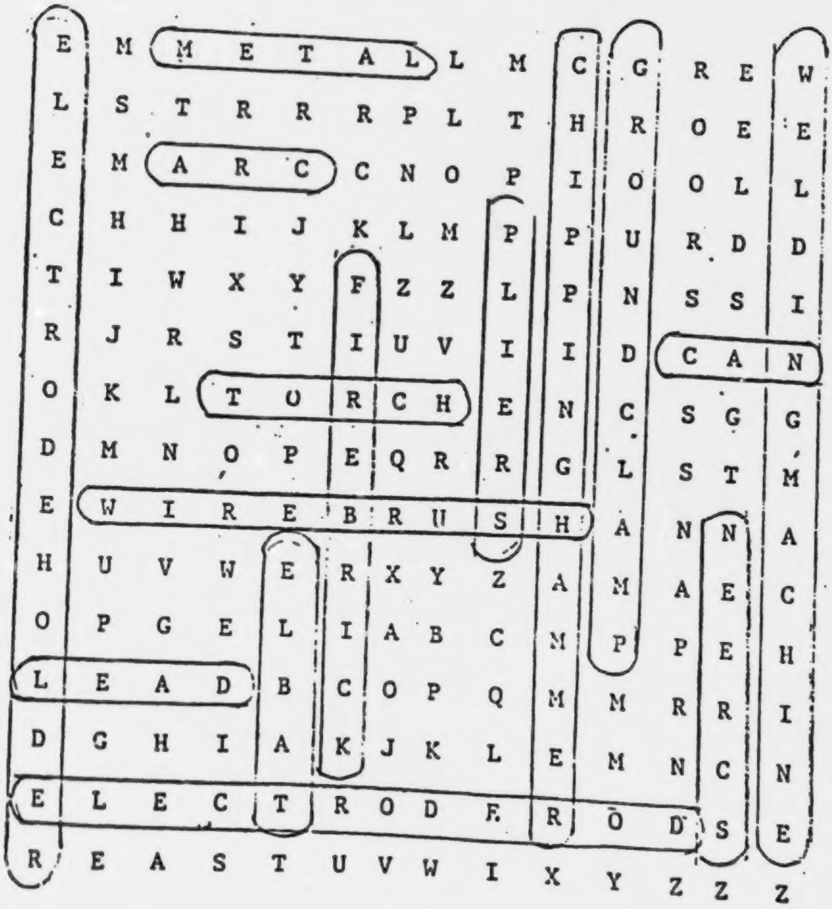
LESSON 6-B

Have the students find the following words in the puzzle below. They appear forward, backward, up and down.

Welding booth (arc)

1. pliers
2. wire brush
3. chipping hammer
4. screen
5. electrode rods
6. electrode holder
7. lead
8. can
9. metal
10. firebrick
11. ground clamp
12. table
13. welding machine
14. torch
15. arc

WORD SEARCH



E	M	M	E	T	A	L	L	M	C	G	R	E	W
L	S	T	R	R	R	P	L	T	H	R	O	E	E
E	M	A	R	C	C	N	O	P	I	O	O	L	L
C	H	H	I	J	K	L	M	P	P	U	R	D	D
T	I	W	X	Y	F	Z	Z	L	P	N	S	S	I
R	J	R	S	T	I	U	V	I	I	D	C	A	N
O	K	L	T	O	R	C	H	E	N	C	S	G	G
D	M	N	O	P	E	Q	R	R	G	L	S	T	M
E	W	I	R	E	B	R	U	S	H	A	N	N	A
H	U	V	W	E	R	X	Y	Z	A	M	A	E	C
O	P	G	E	L	I	A	B	C	M	P	P	E	H
L	E	A	D	B	C	O	P	Q	M	M	R	R	I
D	G	H	I	A	K	J	K	L	E	M	N	C	N
E	L	E	C	T	R	O	D	E	R	O	D	S	E
R	E	A	S	T	U	V	W	I	X	Y	Z	Z	Z

Name:____________________________

LESSON 6-B

Directions: Find the following words in the puzzle below. They appear forward, backward, up and down.

1. pliers
2. wire brush
3. chipping hammer
4. screen
5. electrode rods
6. electrode holder
7. lead
8. can
9. metal
10. fire brick
11. ground clamp
12. table
13. welding machine
14. torch
15. arc

WORD SEARCH

E	M	M	E	T	A	L	L	M	C	G	R	E	W
L	S	T	R	R	R	P	L	T	H	R	O	E	E
E	M	A	R	C	C	N	O	P	I	O	O	L	L
C	H	H	I	J	K	L	M	P	P	U	R	D	D
T	I	W	X	Y	F	Z	Z	L	P	N	S	S	I
R	J	R	S	T	I	U	V	I	I	D	C	A	N
O	K	L	T	O	R	C	H	E	N	C	S	G	G
D	M	N	O	P	E	Q	R	R	G	L	S	T	M
E	W	I	R	E	B	R	U	S	H	A	N	N	A
H	U	V	W	E	R	X	Y	Z	A	M	A	E	C
O	P	G	E	L	I	A	B	C	M	P	P	E	H
L	E	A	D	B	C	O	P	Q	M	M	R	R	I
D	G	H	I	A	K	J	K	L	E	M	N	C	N
E	L	E	C	T	R	O	D	E	R	O	D	S	E
R	E	A	S	T	U	V	W	I	X	Y	Z	Z	Z

INSTRUCTOR'S SHEET

LESSON 6-C

Have the students fill in the blanks to make names of tools and equipment used at an arc welding station.

Arc WELDING STATION

1. p l i e r s

2. s c r e e n

3. t a b l e

4. e l e c t r o d e

5. g r o u n d c l a m p

6. w i r e b r u s h

7. c h i p p i n g h a m m e r

8. f i r e b r i c k

9. w e l d i n g m a c h i n e

10. e l e c t r o d e h o l d e r

Name:______________________

LESSON 6-C

SPELLING TEST

Arc WELDING STATION

Directions: Fill in the blanks to make names of tools and equipment used at an Arc welding station.

1. __ l __ __ __ __

2. s __ __ e __ n

3. __ __ __ l __

4. __ __ e __ t __ __ __ __

5. __ r __ __ __ __   __ __ a __ __

6. __ i __ __   __ __ a __ __

7. __ __ h __ __ __ __ __   __ a __ __ __ __

8. __ __ r __   __ r __ __ __

9. __ e __ __ __ n __   __ __ c __ __ __ __

10. __ __ __ c __ __ __ __ e   __ __ l __ __ r

Name:____________________

LESSON 6-D

ARC WELDING - STRUCTURES

Directions: Practice the following structures with a partner.

Where's the	wire brush?	It's on	the table.
	chipping hammer?		the wall.
	screen?		the floor.
	electrode holder?	It's under	the table.
	electrode rod?		the wire brush.
	ground clamp?	It's next to the	ground clamp.
	fire brick?		electrode holder.
	table?		chipping hammer.
	welding machine?		wire brush.
			pliers.

LESSON 7

GAS WELDING STATION

INTRODUCTION: In oxyacetylene welding the heat for the operation is obtained by the combustion of acetylene and oxygen. The welding apparatus consists of two pressure regulators one containing acetylene and the other oxygen.

PURPOSE: The purpose of this unit is to introduce vocabulary and structures related to the gas welding apparatus so that students can identify and verbalize the different components of a welding unit and be able to safely handle them.

OBJECTIVE:

1. Students should be able to identify gas welding station equipment.

2. Students should know equipment care and equipment operation words and structures.

VOCABULARY: It will consist of words used to identify oxyacetylene equipment and care.

MATERIALS:

1. Portable unit from the welding shop.

2. Handouts

PROCEDURE:

1. Bring the portable unit to the classroom and ask each student to tell you the names of the parts of the equipment they can identify.

2. Review names of tools and equipment stressing the correct pronunciation and also differentiating between the oxygen and acetylene tanks and their accessories.

3. Handout 7-A. Let the students read the names of the parts of the equipment and get familiar with the words in print. Ask the students to spell the words aloud.

4. Ask each student to identify parts of the gas welding portable unit and then give them Handout 7-B. Students should fill in the blanks with the part number.

5. Review the portable unit parts to reinforce identification, pronunciation and spellings. Then have students write the name of the part indicated in the diagram.

6. Handout 7-D. Review words for pronunciation practice and then let the students find the given words in the

"WORD SEARCH." Collect the handout and correct it.

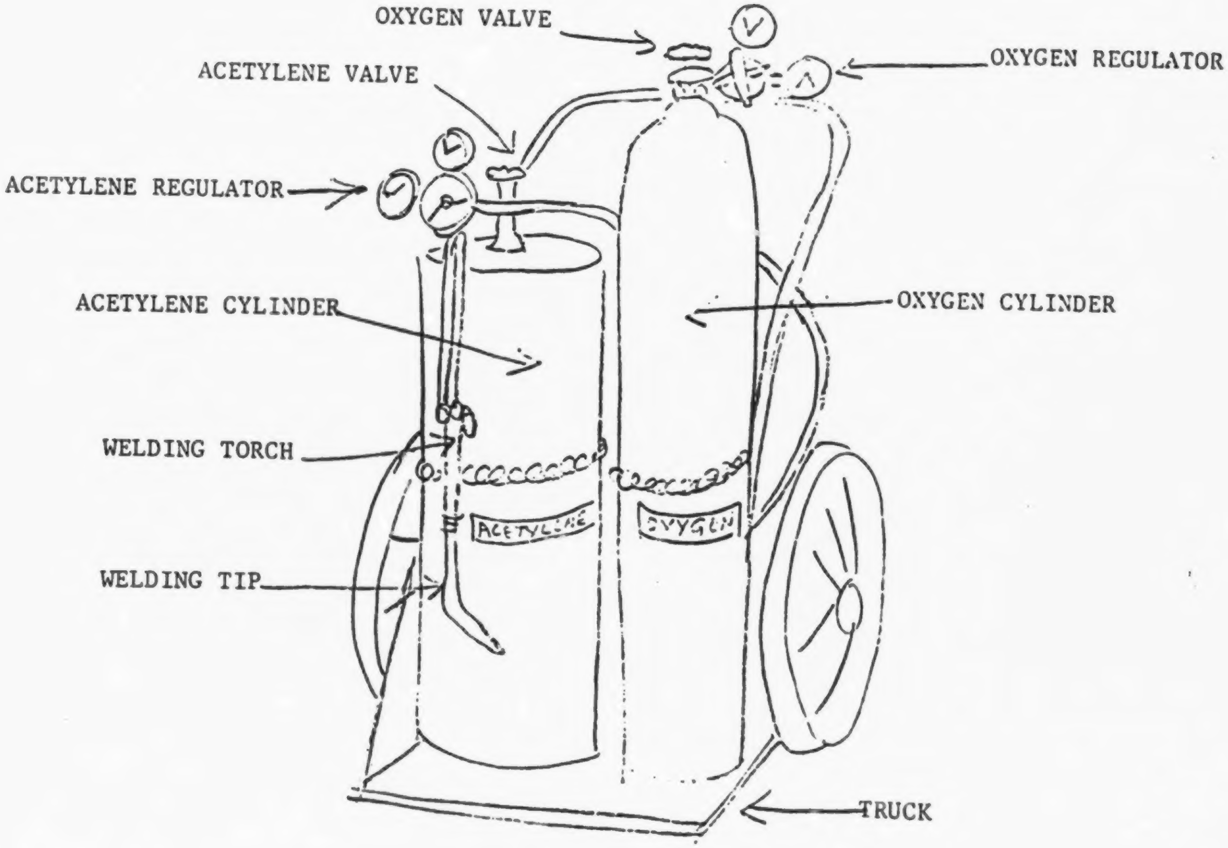
7. Handout 7-E. Have students fill in the blanks with the correct letters. Have them exchange their papers and correct them as you write the correct answers on the chalkboard.

8. Discuss phrases like on the left, on the right, closest to, furthest from, one with higher numbers and one with lower numbers. Demonstrate the question and answer structure with the help of a student. Then have the students practice the structures in pairs.

Name:______________________________

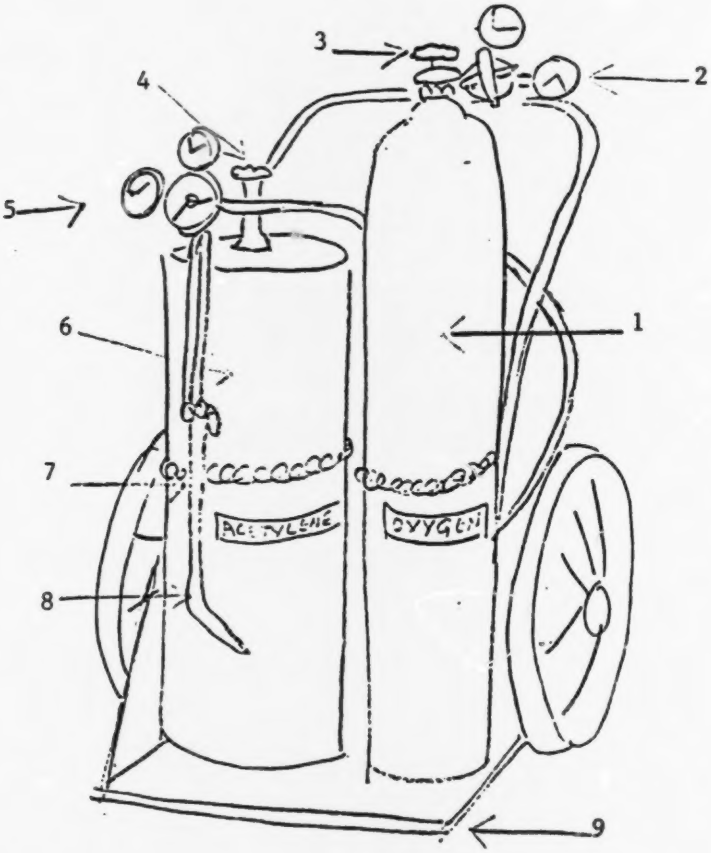
LESSON 7-A

Directions: Read the names of the parts of the equipment and get familiar with the words.


OXYGEN VALVE
ACETYLENE VALVE
OXYGEN REGULATOR
ACETYLENE REGULATOR
ACETYLENE CYLINDER
OXYGEN CYLINDER
WELDING TORCH
ACETYLENE
OXYGEN
WELDING TIP
TRUCK

Name:______________________________

LESSON 7-B



Directions: Look at the diagram above and identify the parts of the portable unit by filling in the blanks with the correct numbers.

______ ACETYLENE REGULATOR

______ OXYGEN VALVE

______ OXYGEN REGULATOR

______ ACETYLENE CYLINDER

______ WELDING TORCH

______ WELDING TIP

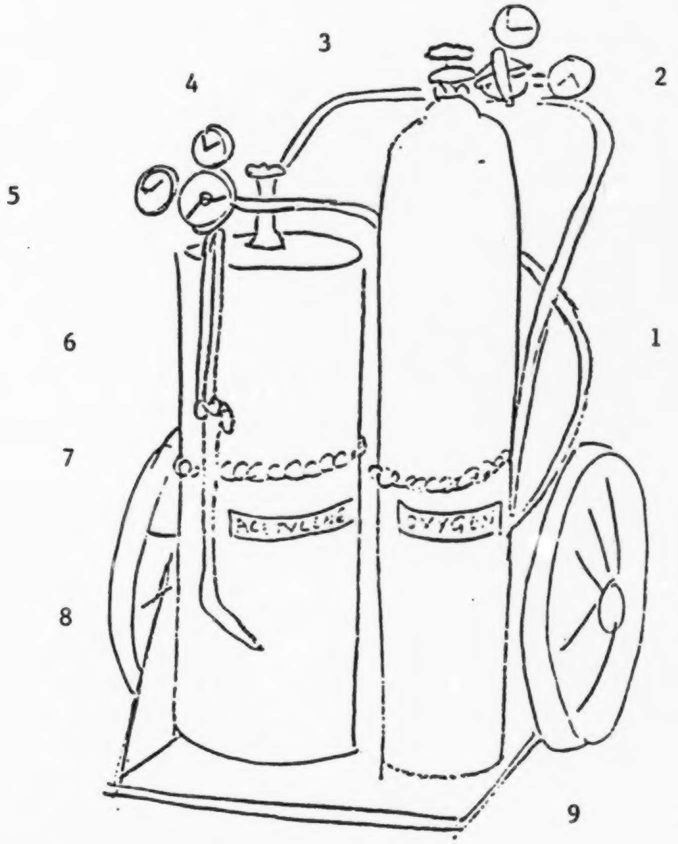
______ OXYGEN CYLINDER

______ ACETYLENE VALVE

______ TRUCK

Name: ____________________

LESSON 7-C


3
4
2
5
6
1
7
ACETYLENE
OXYGEN
8
9

Directions:

Write the names of the parts of the portable unit.

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________

INSTRUCTOR'S SHEET

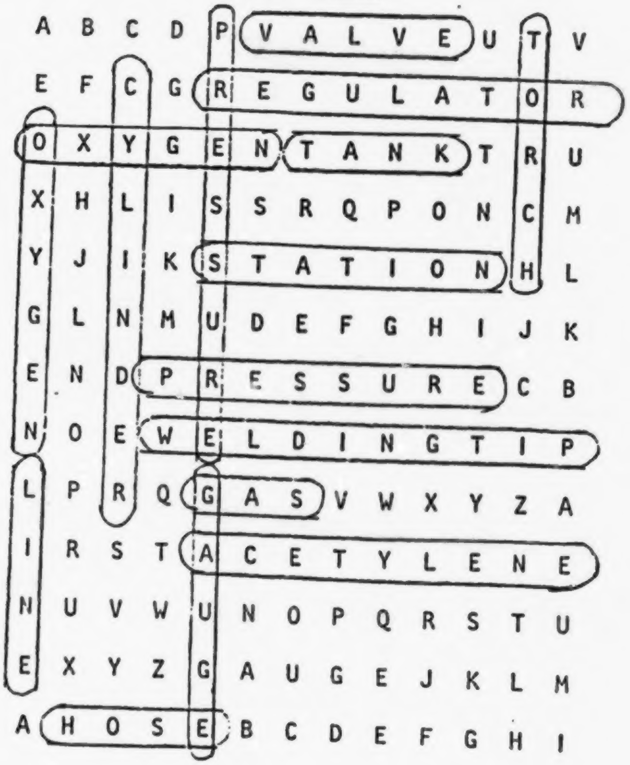
LESSON 7-D

WELDING STATION (gas)

Have the students find the following words in the puzzle below. They appear either vertically or horizontally.

1. gas
2. cylinder
3. station
4. acetylene
5. pressure
6. oxygen line
7. regulator
8. torch
9. welding tip
10. pressure gauge
11. oxygen tank
12. hoses
13. valve

WORD SEARCH



A	B	C	D	P	V	A	L	V	E	U	T	V
E	F	C	G	R	E	G	U	L	A	T	O	R
O	X	Y	G	E	N	T	A	N	K	T	R	U
X	H	L	I	S	S	R	Q	P	O	N	C	M
Y	J	I	K	S	T	A	T	I	O	N	H	L
G	L	N	M	U	D	E	F	G	H	I	J	K
E	N	D	P	R	E	S	S	U	R	E	C	B
N	O	E	W	E	L	D	I	N	G	T	I	P
L	P	R	Q	G	A	S	V	W	X	Y	Z	A
I	R	S	T	A	C	E	T	Y	L	E	N	E
N	U	V	W	U	N	O	P	Q	R	S	T	U
E	X	Y	Z	G	A	U	G	E	J	K	L	M
A	H	O	S	E	B	C	D	E	F	G	H	I

Name:______________________

LESSON 7-D

WELDING STATION (gas)

Directions: Find the following words in the puzzle below. They appear either vertically or horizontally.

1. gas
2. cylinder
3. station
4. acetylene
5. pressure
6. oxygen line
7. regulator
8. torch
9. welding tip
10. pressure gauge
11. oxygen tank
12. hoses
13. valve

WORD SEARCH

A	B	C	D	P	V	A	L	V	E	U	T	V
E	F	C	G	R	E	G	U	L	A	T	O	R
O	X	Y	G	E	N	T	A	N	K	T	R	U
X	H	L	I	S	S	R	Q	P	O	N	C	M
Y	J	I	K	S	T	A	T	I	O	N	H	L
G	L	N	M	U	D	E	F	G	H	I	J	K
E	N	D	P	R	E	S	S	U	R	E	C	B
N	O	E	W	E	L	D	I	N	G	T	I	P
L	P	R	Q	G	A	S	V	W	X	Y	Z	A
I	R	S	T	A	C	E	T	Y	L	E	N	E
N	U	V	W	U	N	O	P	Q	R	S	T	U
E	X	Y	Z	G	A	U	G	E	J	K	L	M
A	H	O	S	E	B	C	D	E	F	G	H	I

INSTRUCTOR'S SHEET

LESSON 7-E

GAS WELDING

Have the students complete the following words.

1. oxygen valve
2. oxygen hose
3. acetylene tank
4. acetylene line gauge
5. welding tip
6. oxygen tank gauge
7. regulator
8. welding torch
9. acetylene hose
10. gas welding

Name:________________________

LESSON 7-E

GAS WELDING

Directions: Complete the following words.

1. o _ _ g _ _   v _ l _ _

2. _ x _ _ e _   _ _ s _

3. _ c _ _ y _ _ _ _   t _ n _

4. a _ _ t _ _ e _ _   l i _ _   _ _ u g -

5. w _ l _ _ n _   _ i _

6. o _ _ _ _ n   _ a _ k   _ a _ g _

7. _ _ g _ l _ _ o _

8. _ e _ d _ _ g   _ o _ c _

9. a _ e _ y _ _ n _   h _ s _

10. _ a _   _ e l _ i _ _

Name:____________________________

LESSON 7-F

GAS WELDING - STRUCTURES I

Directions: Practice the following structures with your partner.

Which one is the	oxygen valve? acetylene valve? oxygen tank? acetylene tank? line gauge? tank gauge? oxygen hose? acetylene hose?	The one on the left. The one on the right.	
		The one closest to the hose. The one closest to the tank. The one furthest from the hose. The one furthest from the tank.	
		The one with higher numbers. The one with lower numbers.	

LESSON 8

WELDING MACHINE CONTROLS

INTRODUCTION: Students should be able to respond accurately and quickly to imperatives concerning controls. These colloquialisms are used in welding.

PURPOSE: There are many different kinds of switches and knobs, however it is possible to promote a general understanding of different control verbs and nouns.

OBJECTIVE: The objectives of the unit are:

1. to know different kinds of controls.
2. to know verbs connected with controls.
3. to comprehend and follow directions when required to control machines.

MATERIALS:

1. Realia marked Lesson 8.
2. Flashcards
3. Handouts
4. Controls around the classroom.

VOCABULARY: Nouns, verbs and adjectives associated with machine controls.

PROCEDURE:

1. Locate examples of controls around the classroom with the help of students. Use these examples and flashcards to present the names of controls.
2. Use the realia plate with the different kinds of knobs and switches to practice the names of controls. For example, tell the students, "Show me the handwheel". "Which is the knob?" Have the students follow your instructions and manipulate controls.
3. Give Handout 8-A and discuss the open/close and turn structures with the students. Demonstrate open/close operations with a portable gas welding unit.
4. Distribute Handout 8-B. Students should circle the knob or switch they hear you read from the instructor's sheet.
5. Practice the spelling of control words by displaying the flashcards along the chalkboard ledge. Write the names of controls across the chalkboard with

some of the letters blanked out. Ask the students to come up, fill in the blanks and place the matching flashcards beneath the word.

6. Handout 8-C. Discuss the words with the students before they start the exercise of matching opposites in the two lists.

7. Review the common verbs used with controls, like push, pull, turn, flip, switch, press, rotate, adjust, dial, clockwise and counterclock-wise, etc..... write them on the board and have the students give each other commands, using the realia.

8. Read out sentences from the Instructor Sheet 8-D and have the students write the words they hear in the blanks.

9. Have students find examples of controls on the machines in the welding shop.

Name:___________________________

LESSON 8-A

Directions: Discuss the OPEN/CLOSE/TURN/STRUCTURES and demonstrate them to the class.

1. Open the valve
2. Close the valve.
3. Turn off the machine.
4. Turn on the machine.
5. Make a half turn.
6. Make a complete turn.
7. Turn it all the way.
8. Turn it up.
9. Turn it counterclock-wise.
10. Turn it clock-wise.
11. Crack the valve.
12. Crank it down.
13. You need more heat.
14. Adjust the amps.

LESSON 8-B

CONTROLS

Read the following sentences to the students. Instruct them to circle the appropriate pictures on their sheets.

1. Turn the knob.
2. Turn the valve.
3. Turn the dial.
4. Press the switch.
5. Flip the switch.
6. Turn the dial to zero.
7. Turn the knob to off.
8. Turn the T-handle.

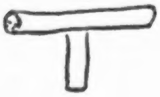
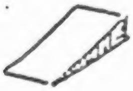
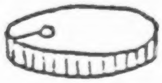
Name:__________________________

LESSON 8-B

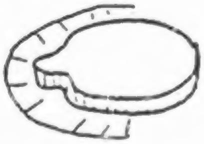
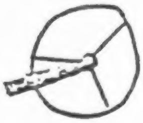
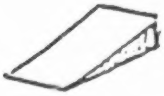
CONTROLS

Directions: Circle the picture of the control word you hear in the sentence.

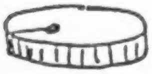
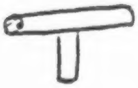
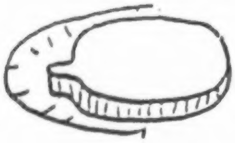
1.

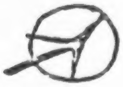
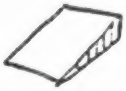
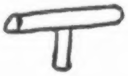
2.

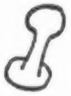
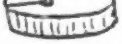
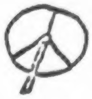
3.

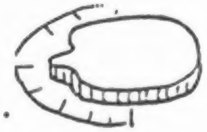
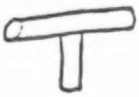
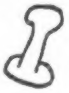
4.

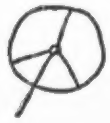
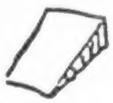
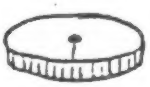
5.

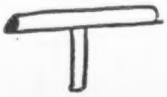
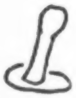
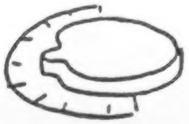
6.

7.

8.

INSTRUCTOR'S SHEET

LESSON 8-C

CONTROL VERBS

Directions: Have students match the words in List A to their opposites in List B.

List A	List B
1. open	turn off 6
2. crank it up	close 1
3. more heat	turn it down 5
4. crack the valve	turn it counter clock-wise 7
5. turn it up	crank it down 2
6. turn on	less heat 3
7. turn it clock-wise	back the valve off 4

Name:____________________________

LESSON 8-C

CONTROL VERBS

Directions: Match the words in List A to their opposites in List B.

List A	List B
1. open	turn off
2. crank it up	close
3. more heat	turn it down
4. crack the valve	turn it counterclock-wise
5. turn it up	crank it down
6. turn on	less heat
7. turn it clock-wise	back the valve off

INSTRUCTOR'S SHEET

LESSON 8-D

CONTROL VERBS

Read the following sentences to the students. Have them fill in the blanks with the control verbs.

1. Turn the knob.

2. Flip the switch.

3. Adjust the dial.

4. Turn off the switch.

5. Pull the lever.

6. Push the button.

7. Push the lever.

8. Turn on the switch.

9. Adjust the lever.

10. Switch off the switch.

Name:______________________

LESSON 8-D

CONTROLS/VERBS

Directions: Write the control verb you hear in the sentence.

1. ______________________ the knob.

2. ______________________ the switch.

3. ______________________ the dial.

4. ______________________ the switch.

5. ______________________ the lever.

6. ______________________ the button.

7. ______________________ the lever.

8. ______________________ the switch.

9. ______________________ the lever.

10. ______________________ the switch.

LESSON 9

WELDING ANGLES, DIRECTION AND MOTION

INTRODUCTION:

The angle and direction at which you weld is crucial to the quality, and type of weld you make. Students are often unfamiliar with the measurement of angles but they need to understand the concept and vocabulary in order to follow oral and written instructions.

PURPOSE:

The purpose of this unit is to familiarize students with concepts and vocabulary related to working at a specific angle and direction with different motions.

OBJECTIVE:

The objectives are to:

1. review different measuring tools.
2. review concept of angles.
3. comprehend structures used in talking of direction and motion in welding.

VOCABULARY:

Nouns, verbs and adjectives used in describing angles, motions and direction in welding.

MATERIALS:

1. Protractors (in box marked Lesson 9).
2. Flashcards.
3. Handouts

PROCEDURE:

1. Review the different measuring tools, for example, scale, tape measure, ruler and framing square.
2. Discuss the concept of right angle, straight line, circle, and 360°. Make drawings on the chalkboard.
3. Distribute the protractors, explain their use, and ° sign for degree. Discuss 45°, 90°, 180°, and 360°. Ask students to draw angles on the chalkboard. Using their protractors ask them to draw angles of different degrees on sheets of papers. Draw some angles on the board and ask the students to identify the type.
4. Handout 9-A. Students should circle the angle they hear in the sentence.
5. Introduce the following direction structures:
   a. to the left
   to the right

   b. from right to left
   from left to right

   c. along the full length

   d. along the surface

   e. to the left of
      to the right of

6. Using Total Physical Response, practice the above structures, with one student demonstrating and others taking turns in answering. Drill pronunciation also.

7. Handout 9-B. Students should circle the direction they hear in the sentence.

8. Introduce different motions using mime and sketches on the chalkboard. Display motion flashcards to drill pronunciation and spelling.

9. Handout 9-C. Students should practice the motion words and imperatives.

10. Handout 9-D. Students should circle the motion word they hear in the sentence.

11. Handout 9-F. Students should fill in the welding motion they see in the pictures.

12. As a final review of the combined structures read instructions from the Handout 9-F, students should make the appropriate sketches on blank sheets of paper. Collect and correct Handout 9-F.

LESSON 9-A

ANGLES

Have the students circle the angles they hear you say in the following sentences.

1. Draw a 16° angle.
2. Weld at a 40° angle.
3. Weld at a 55° angle.
4. Weld at a 22° angle.
5. Weld at a 70° angle.
6. Weld at a 15° angle.
7. Weld at a 16° angle.
8. Weld at a 29° angle.
9. Weld at a 79° angle.
10. Weld at a 65° angle.
11. Weld at a 49° angle.
12. Weld at a 13° angle.
13. Weld at a 40° angle.
14. Weld at a 180° angle.
15. Weld at a 55° angle.

Name:________________________

LESSON 9-A

ANGLES

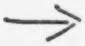
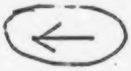
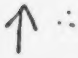
Directions: Circle the angle you hear in the sentence.

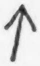
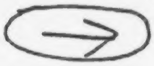
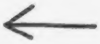
1. a) 15° b) 16° c) 17°
2. A) 20° b) 30° c) 40°
3. a) 45° b) 55° c) 25°
4. a) 22° b) 32° c) 42°
5. a) 90° b) 60° c) 70°
6. a) 15° b) 14° c) 50°
7. a) 16° b) 60° c) 13°
8. a) 19° b) 90° c) 29°
9. a) 75° b) 79° c) 17°
10. a) 69° b) 65° c) 60°
11. a) 35° b) 45° c) 49°
12. a) 13° b) 30° c) 35°
13. a) 80° b) 18° c) 40°
14. a) 180° b) 80° c) 18°
15. a) 90° b) 65° c) 55°

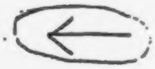
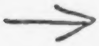
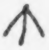
LESSON 9-B

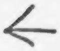
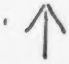
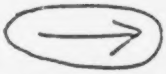
DIRECTION

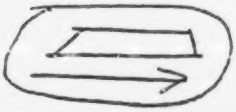
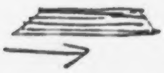
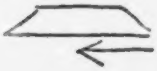
Read the following sentences to the students. They will circle the appropriate pictures on their sheets.

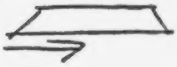
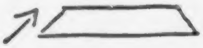
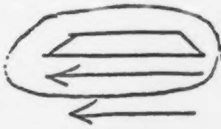
1.    Weld to the left.

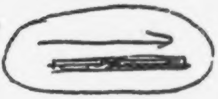
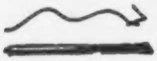
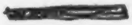
2.    Weld to the right.

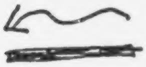
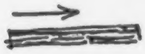
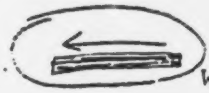
3.    Weld from right to left.

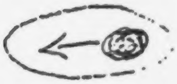
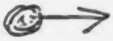
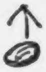
4.    Weld from left to right.

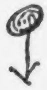
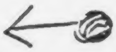
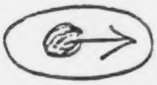
5.    Weld the full length.

6.    Weld along the full length.

7.    Weld along the surface.

8.    Weld along the surface to the left.

9.    Weld to the left of the mark.

10.    Weld to the right of the circle.

BEST COPY AVAILABLE

Name:________________________

LESSON 9-B

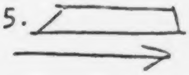
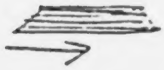
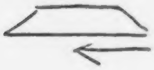
Directions: Circle the direction you hear in the sentence.

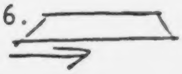
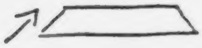
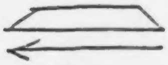
1. → ← ↑

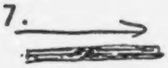
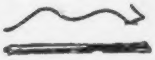
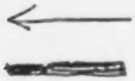
2. ↑ → ←

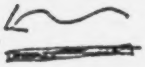
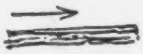
3. ← → ↑

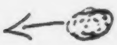
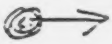
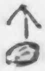
4. ← ↑ →

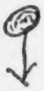
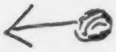
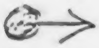
5.




6.




7.




8.



9.




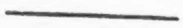
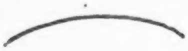
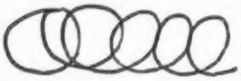
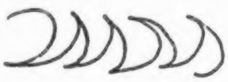
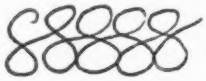
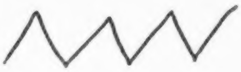
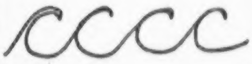
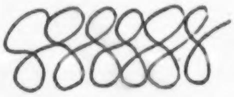
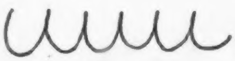
10.




Name: ______________________

WELDING MOTIONS

LESSON 9-C

Directions: Repeat the following sentences after the teacher.

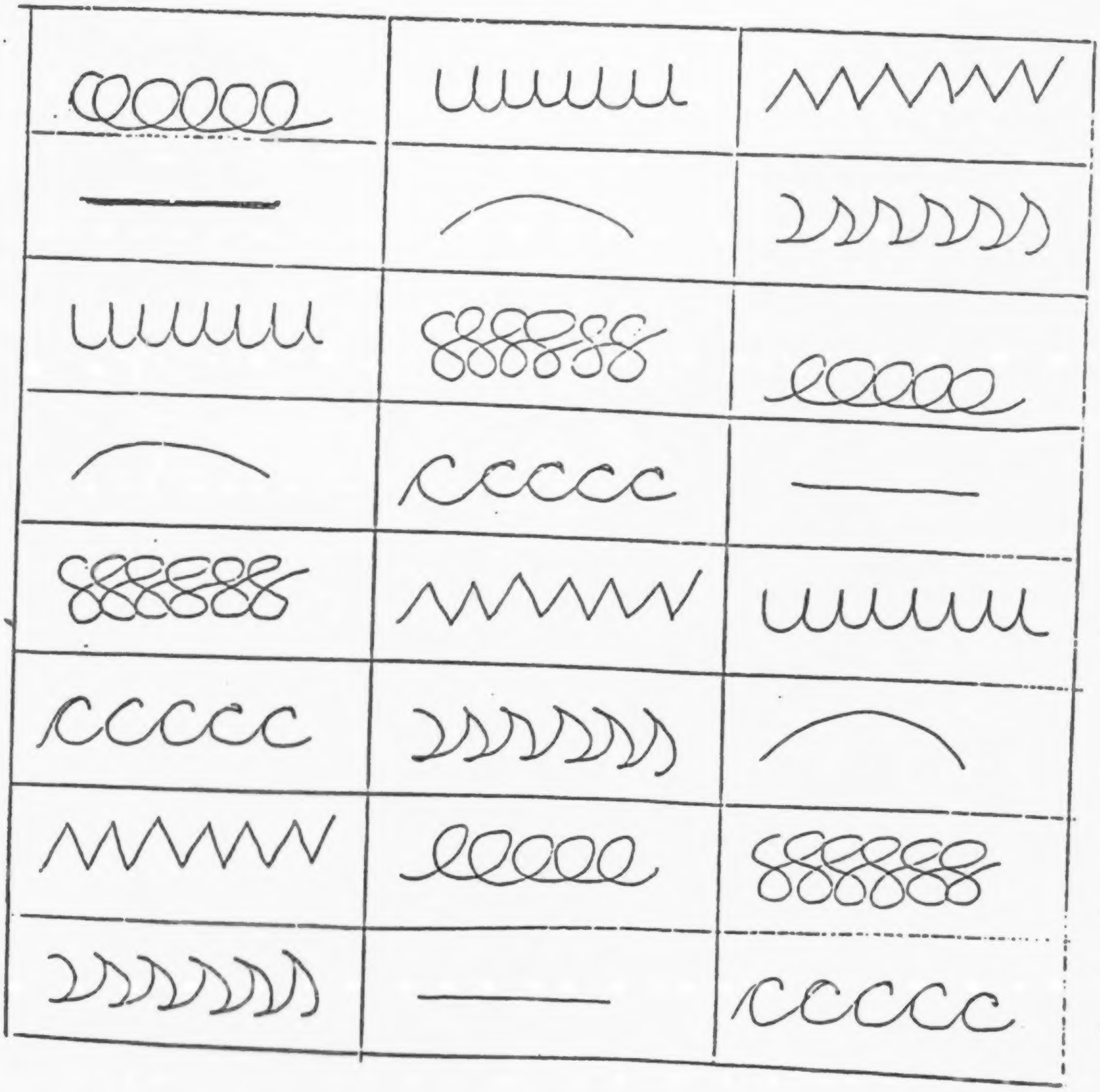
	Weld in a straight line.
	Weld in a curved line.
	Make a circular motion.
	Make a half-moon motion.
	Make a figure of eight motion.
	Make a zig-zag motion.
	Make a semi-circular motion.
	Make a weaving motion.
	Make a U motion.

INSTRUCTOR'S SHEET

LESSON 9-D

MOTIONS

Students will mark the motion word they hear the teacher say.



zig-zag

straight line

U-motion

semi-circle

figure-eight motion

curved

circular

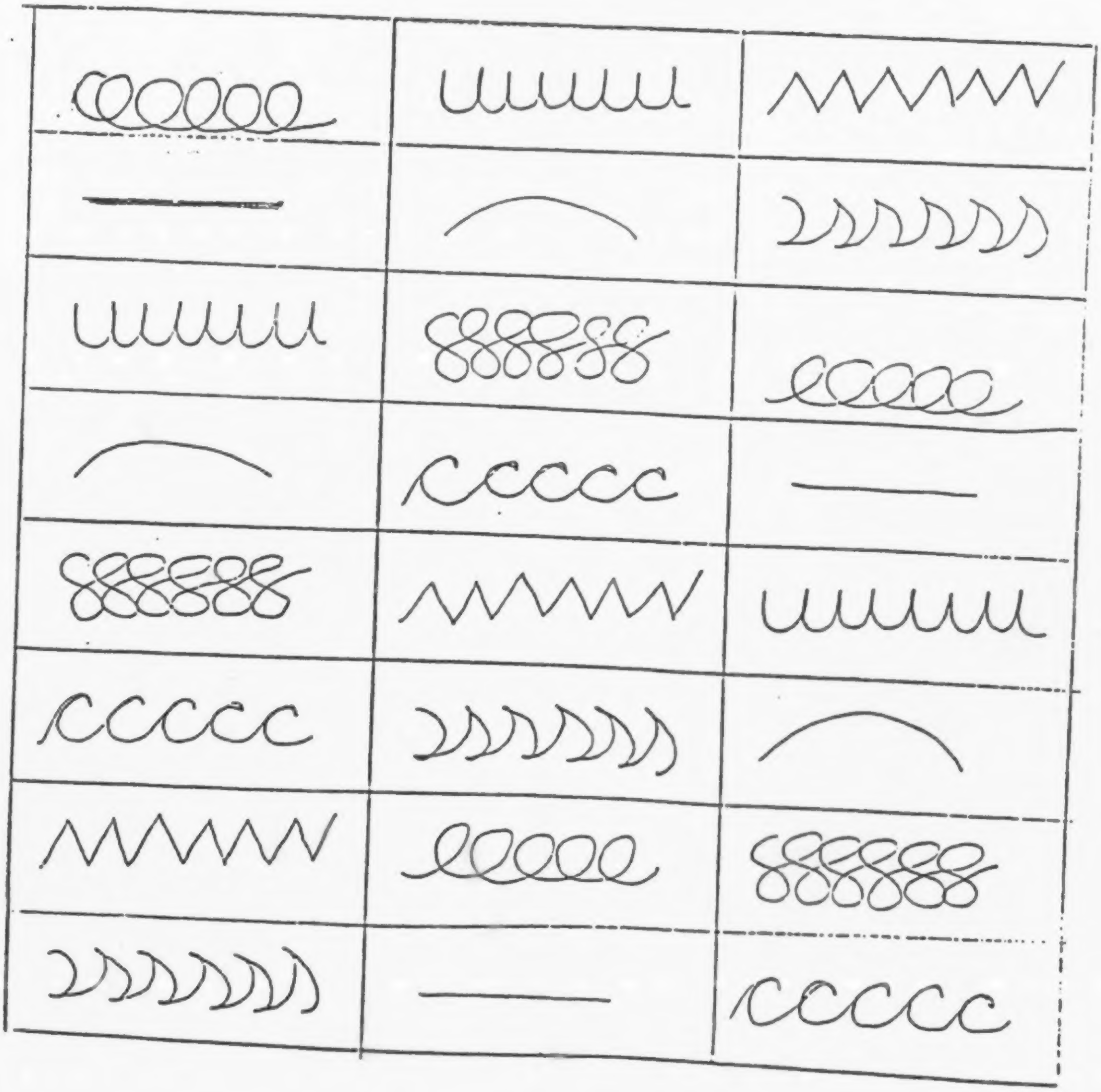
straight line

Name:______________________

LESSON 9-D

MOTIONS

Directions: Circle the motion diagram you hear the teacher say.

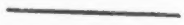
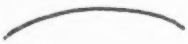
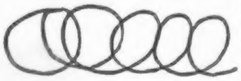
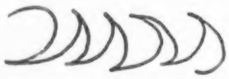
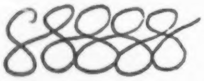
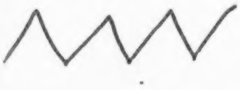
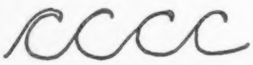
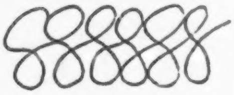
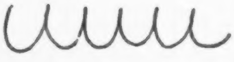


INSTRUCTOR'S SHEET

LESSON 9-E

WELDING MOTIONS

Have the students fill in the boxes with the names of motions in the pictures.

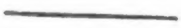
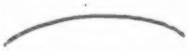
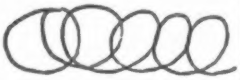
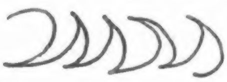
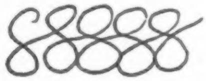
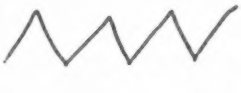
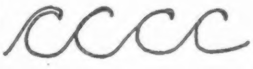
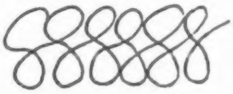
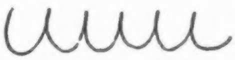
	straight line
	curved line
	circular motion
	half-moon motion
	figure-eight motion
	zig-zag motion
	semi-circular motion
	weaving motion
	U-motion

Name:

LESSON 9-E

WELDING MOTIONS

Directions: Fill in the boxes with the names of motions in the pictures.

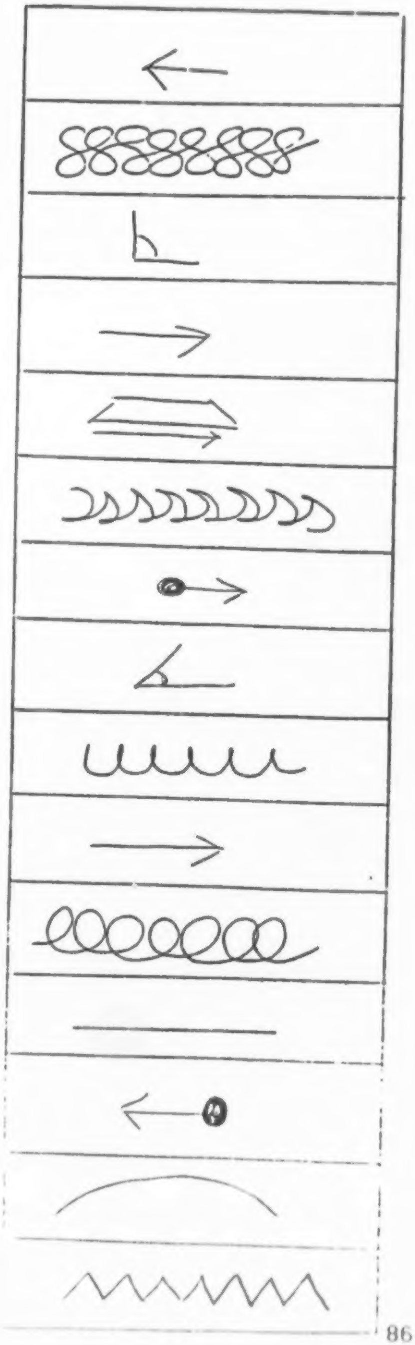
INSTRUCTOR'S SHEET

LESSON 9-F

COMBINATION IMPERATIVES

Read out the following imperatives and have the students make appropriate sketches on their answer sheets.

1. Weld to the left.
2. Weld in a figure-eight motion.
3. Weld at a 90° angle.
4. Weld to the right.
5. Weld along the surface.
6. Weld in a half-moon motion.
7. Weld to the right of the circle.
8. Weld at a 45° angle.
9. Weld in a U motion.
10. Weld to the right.
11. Weld in a circular motion.
12. Weld in a straight line.
13. Weld to the left of the mark.
14. Weld in a curved line.
15. Weld in a zig-zag motion.



Name:____________________________

LESSON 9-F

Directions: Listen to the teacher and then draw the directional imperative you hear.

1.	2.
3.	4.
5.	6.
7.	8.
9.	10.
11.	12.
13.	14.
15.	

LESSON 10

ARC WELDING PROCESS

INTRODUCTION: Learning to arc weld involves mastering specific series of operations. This requires practice and establishing a routine for the arc welding process.

PURPOSE: The purpose is to review and introduce vocabulary and structures necessary to follow the arc welding process instructions.

OBJECTIVE: Specific objectives of this lesson are:

1. to comprehend and verbalize the arc welding process.
2. to know vocabulary related to the arc welding process.
3. to review the welding booth and safety vocabulary.

VOCABULARY: Verbs and nouns related to the arc welding process.

MATERIALS:

1. Safety flashcards.
2. Handouts

PROCEDURE:

1. Display the flashcards and review safety clothing and procedures while welding.
2. Handout 10-A and review the welding procedure with the students. Discuss any words they may not understand.
3. Act out the procedure as it appears on the handout. Then ask students to demonstrate the process as members of the class give instructions from the handout.
4. Handout 10-B. Students should fill in the blanks with the appropriate words to complete the welding process sentences.
5. Handout 10-C is for the purpose of reviewing the components of an arc welding booth.
6. Elicit safety procedure information from the students and then give out Handout 10-D and review the procedures in order to reinforce the importance of safety steps.

Name:______________________________

LESSON 10-A

ARC WELDING

Directions: Discuss the welding process in the class.

1. Put on your apron and jacket.

2. Turn on the welder.

3. Select the correct amerage.

4. Attach the ground clamp to the base metal.

5. Put on your gloves and helmet.

6. Place the electrode in the holder.

7. Strike an arc.

8. Keep the arc length at about an eighth of an inch from the base metal

9. Make a half-moon motion with the rod.

10. Move the rod at a 40° angle, at the correct speed.

LESSON 10-B

WELDING STATION - ARC WELDING

Have the students fill in the blanks to complete the welding process sentences.

Put on your ___apron___ and ___jacket___.

Turn on the ___welder___.

Select the ___correct___ amperage.

Attach the ___ground___ clamp to the ___base___ metal.

Put on your ___gloves___ and ___helmet___.

Place the ___electrode___ in the holder.

___strike___ an arc.

Keep the ___arc___ length at about 1/8" from the base ___metal___.

Make a half-moon motion with the ___rod___.

Move the rod at a 40° ___angle___, at the correct speed.

Name:____________________

LESSON 10-B

WELDING STATION - ARC WELDING

Directions: Fill in the blanks to complete the welding process sentences.

Put on your ____________ and ____________.

Turn on the ____________.

Select the ____________ amperage.

Attach ____________ clamp to the ____________ metal.

Put on your ____________ and ____________.

Place the ____________ in the holder.

____________ an arc.

Keep the ____________ length at about 1/8" from the base ____________.

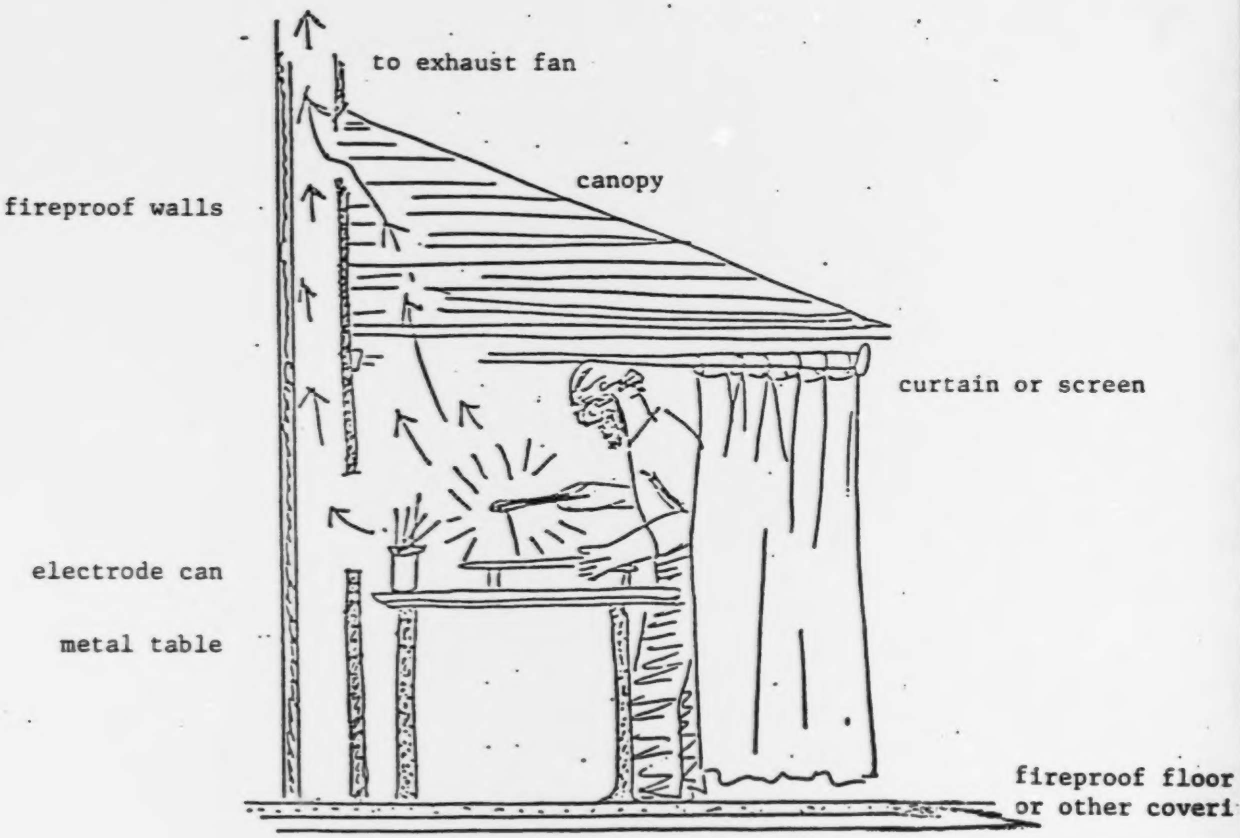
Make a half-moon motion with the ____________.

Move the rod at a 40° ____________ at the correct speed.

INSTRUCTOR'S SHEET

LESSON 10-C

SHIELDED METAL ARC WELDING BOOTH


to exhaust fan
canopy
fireproof walls
curtain or screen
electrode can
metal table
fireproof floor
or other coveri

A welding booth is a safe work area.

Have the students write the names of other tools and equipment you see in the picture.

1. HELMET

2. ELECTRODE HOLDER

3. GLOVES

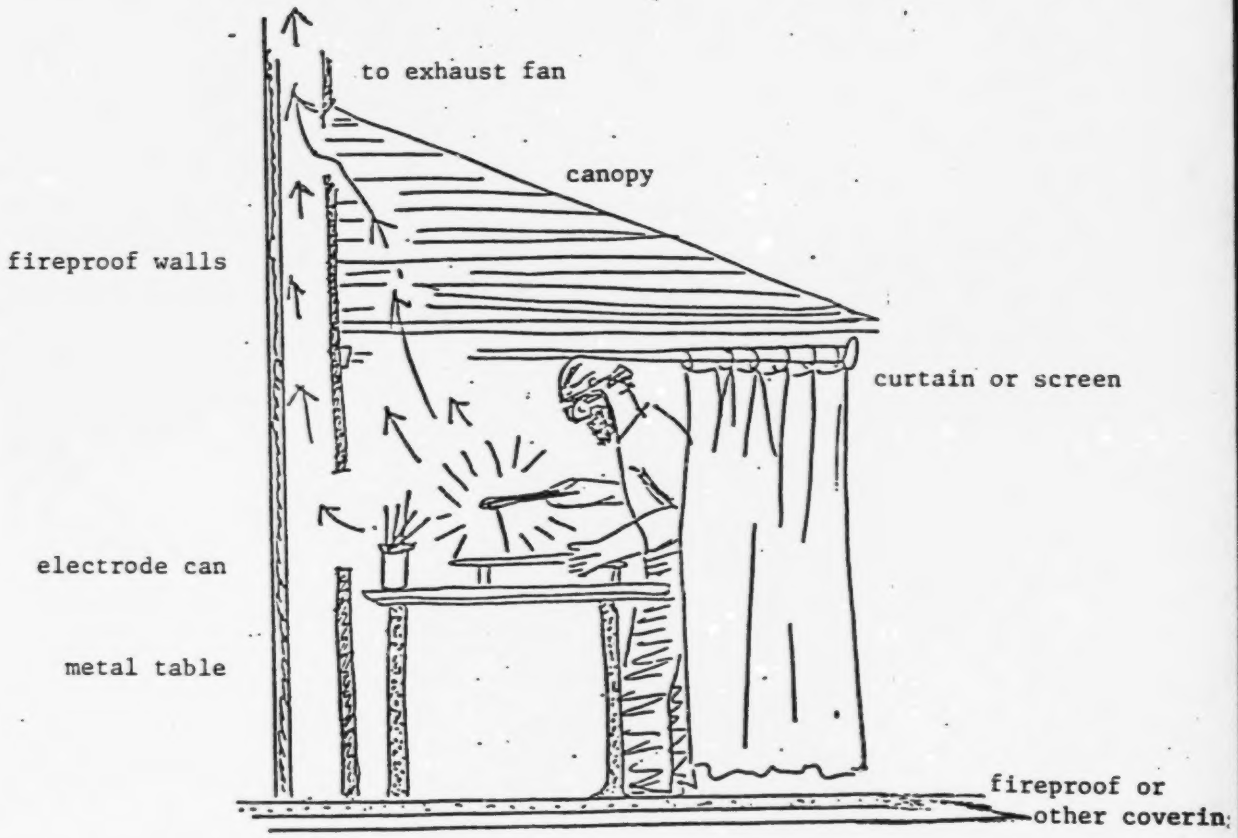
4. ELECTRODE RODS

5. FIRE BRICK

Name:__________________________

LESSON 10-C

SHIELDED METAL ARC WELDING BOOTH


to exhaust fan
canopy
fireproof walls
curtain or screen
electrode can
metal table
fireproof or
other coverin

A welding booth is a safe work area.

Directions: Write the names of other tools and equipment you see in the picture.

1. H _ _ M _ _
2. E L _ _ _ _ _ _ E   _ _ _ D _ R
3. G _ _ V _ _
4. E _ _ _ _ _ _ _ _   R _ _ S
5. _ _ I R   B R _ _ K

LESSON 10-D

ARC WELDING SAFETY - A REVIEW

Review and discuss with the students the following safety procedures in order to reinforce the importance of safety steps.

1. Never look at a welding arc without a shield.

2. Put new lenses in the helmet if the old ones are cracked.

3. Wear goggles when you remove slag from a finished weld.

4. Always wear gloves and an apron when welding.

5. Use an electrode holder with covers on its handles.

6. Do welding in places where there is enough ventilation.

7. Welding cables should not touch hot metal, water, oil or grease.

8. Always check the ground connection.

9. Do not weld near flammable materials like gasoline, plastics, oil, etc.

Name:__________________________

LESSON 10-D

ARC WELDING SAFETY - A REVIEW

Directions: Review and discuss the following safety procedure information and and follow it when working in the welding shop.

1. Never look at a welding arc without a shield.
2. Put new lenses in the helmet if the old ones are cracked.
3. Wear goggles when you remove slag from a finished weld.
4. Always wear gloves and an apron when welding.
5. Use an electrode holder with covers on its handles.
6. Do welding in places where there is enough ventilation.
7. Welding cables should not touch hot metal, water, oil or grease.
8. Always check the ground connection.
9. Do not weld near flammable materials like gasoline, plastics, oil etc.

LESSON 11

GAS WELDING PROCESS

INTRODUCTION: The gas welding process is generally used in industry for general maintenance. It functions on the principle that when acetylene is mixed with oxygen in correct proportions it produces the hottest flame ever known. (63,000°F) It melts and fuses all commercial metals.

PURPOSE: The purpose of the unit is to review and introduce vocabulary and structures necessary to follow and perform gas welding operations safely and correctly.

OBJECTIVE: The objectives are:

1. to review gas welding unit vocabulary.
2. to understand the assembling of the gas welding outfit.
3. to learn the sequence of operation of equipment.

VOCABULARY: Phrases, structures, nouns, adjectives and verbs used when working with gas welding equipment.

MATERIALS:

1. Gas welding portable unit from welding shop
2. Flashcards
3. Handouts

PROCEDURE:

1. Bring the portable unit to class and have students identify its components. Students should then work on Handout 11-A.
2. Discuss the contents of the two cylinders and the importance of handling them correctly. The protector cap which screws into the neck ring of the cylinder is furnished to protect the valve from any damage. The cap must always be in place when the cylinder is not in use. Acetylene cylinders are equipped with safety plugs and contain porous materials to obsorb acetylene under excess pressure.
3. Handout 11-B. Read the handout to the students and disucss any difficult words like chain, crack, attach, connect, select, set and test. Ask students to come up individually to perform the act of asembling the welding outfit and getting it ready for operation.

4. Handout 11-C. The students should read the handout and discuss any difficult words. Point out the next three major steps of activating the station, lighting the torch and closing the station. Again ask individual students to come up and demonstrate each process while others call out the instructions from the handout.

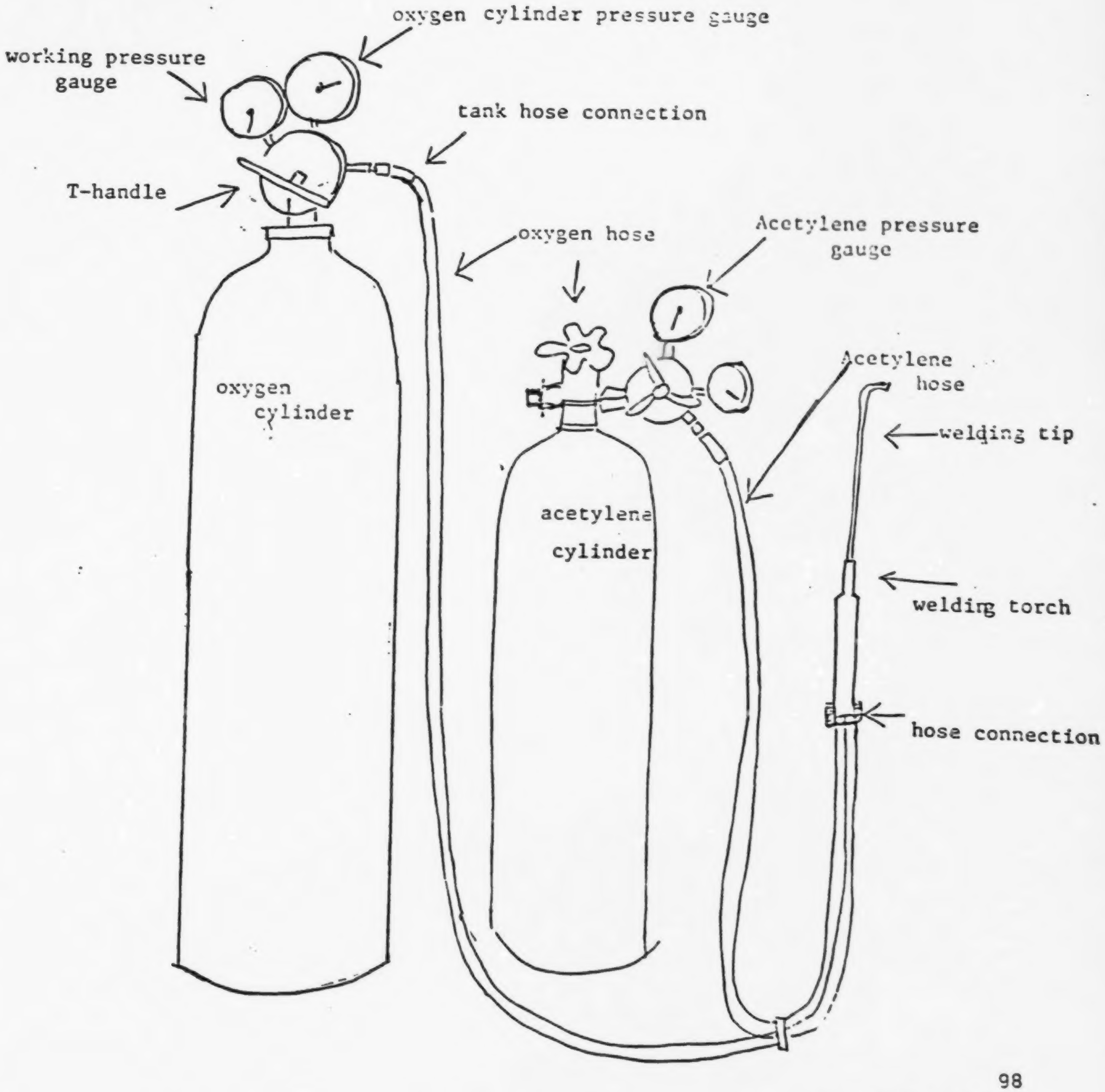
5. Handout 11-D. Discuss the three kinds of welding flames and their use. Practice the pronunciation of the names. Distribute the next handout and have the students identify the flames and terms used for the different cones.

6. Handout 11-E. Students should write the torch lighting process in the correct order. Discuss the correct process in class while the students check each others work

LESSON 11-A

GAS WELDING APPARATUS

Have the students write the names of the components of the gas welding portable unit.


oxygen cylinder pressure gauge
working pressure gauge
tank hose connection
T-handle
oxygen hose
Acetylene pressure gauge
oxygen cylinder
Acetylene hose
welding tip
acetylene cylinder
welding torch
hose connection

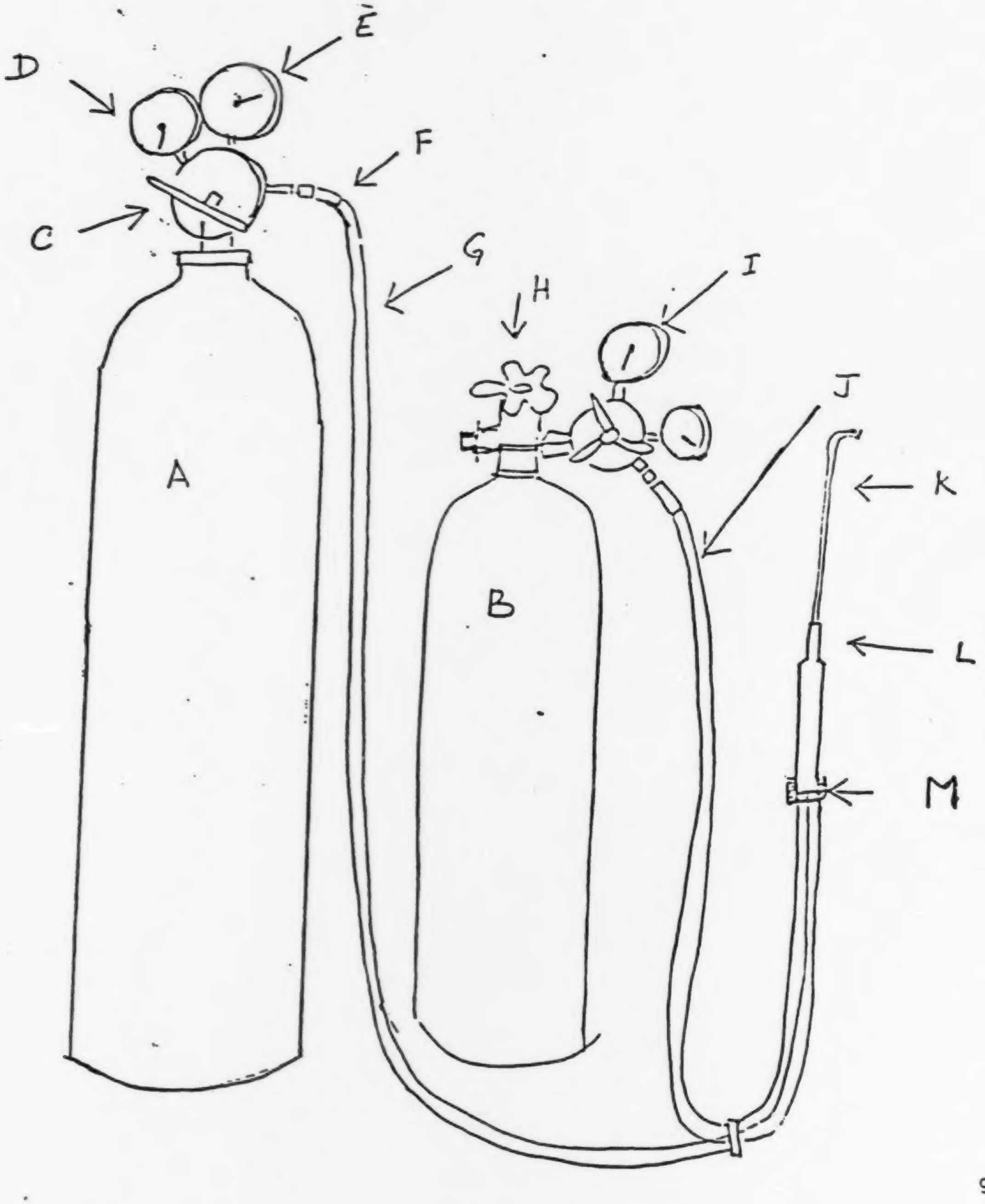
BEST COPY AVAILABLE

Name:__________________________

LESSON 11-A

GAS WELDING APPARATUS

Directions: Identify the components of the gas welding portable unit.



E
D
F
C
G
H
I
J
A
K
B
L
M

LESSON 11-B

ASSEMBLING THE WELDING OUTFIT

Have the students come up individually to follow the given directions in assembling the portable unit, and getting it ready for operation.

1. Chain cylinders securely to the welding cast.

2. Crack cylinder valves to blow out dirt from the outlet valves.

3. Attach the regulators to the cylinders.

4. Connect hoses to the regulators and then blow out any dirt by opening and shutting off regulator adjusting screws.

5. Connect hoses to their respective torch fittings.

6. Select and attach proper torch tip to torch body and tighten.

7. Carefully open oxygen valve all the way.

8. Open acetylene valve one quarter of a turn.

9. Set time pressures.

10. Test for leaks before operating.

Name:_________________________

LESSON 11-B

ASSEMBLING THE WELDING OUTFIT

Directions: Follow the directions to assemble a welding outfit.

1. Chain cylinders securely to the welding cast.

2. Crack cylinder valves to blow out dirt from the outlet valves.

3. Attach the regulators to the cylinders.

4. Connect hoses to the regulators and then blow out any dirt by opening and shutting off regulator adjusting screws.

5. Connect hoses to their respective torch fittings.

6. Select and attach proper torch tip to torch body and tighten.

7. Carefully open oxygen valve all the way.

8. Open acetylene valve one quarter of a turn.

9. Set time pressures.

10. Test for leaks before operating.

LESSON 11-C

GAS WELDING PROCESS

Discuss the three major steps in the welding process.

I. ACTIVATE GAS WELDING STATION

1. Open oxygen and acetylene station valve.
2. Turn adjusting screws on the station regulators to desired pressures for welding.
3. Check pressure in the line pressure gauge.
4. Check torch tip for correct size.

II. LIGHTING THE OXYACETYLENE TORCH

1. Open the acetylene torch valve one-eighth of a turn to the left.
2. Ignite the flame with a striker or a friction lighter.
3. Eliminate smoke from tip of torch by adding acetylene.
4. Gradually open the oxygen valve to produce carburizing flame.
5. More oxygen will make the flame neutral.
6. If excessive oxygen is added the flame will become an oxidizing flame.

III. CLOSE THE STATION

1. Turn off the oxygen and acetylene valves at the top of the line.
2. Open torch needle valves and allow to drain.
3. Close torch needle valves when the gauges read 0.
4. Back off adjusting screws of the station regulators until they turn freely.

Name:______________________

LESSON 11-C

GAS WELDING PROCESS

Directions: Discuss the process of activating, lighting and closing the gas welding station.

I. ACTIVATE GAS WELDING STATION

1. Open oxygen and acetylene station valve.
2. Turn adjusting screws on the station regulators to desired pressures for welding.
3. Check pressure in the line pressure gauge.
4. Check torch tip for correct size.

II. LIGHTING THE OXYACETYLENE TORCH

1. Open the acetylene torch valve one-eighth of a turn to the left.
2. Ignite the flame with a striker or a friction lighter.
3. Eliminates smoke from tip of torch by adding acetylene.
4. Gradually open the oxygen valve to produce carburizing flame.
5. More oxygen will make the flame neutral.
6. If excessive oxygen is added the flame will become an oxidizing flame.

III. CLOSE THE STATION

1. Turn off the oxygen and acetylene valves at the top of the line.
2. Open torch needle valves and allow to drain.
3. Close torch needle valves when the gauges read 0.
4. Back off adjusting screws of the station regulators until they turn freely.

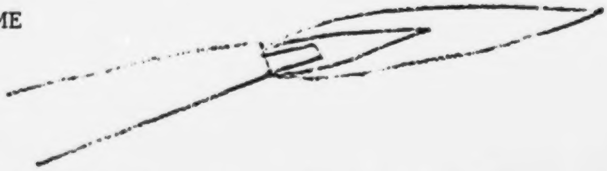
Name:________________________

LESSON 11-D

ADJUSTING THE TORCH FLAME

There are three types of welding flames.

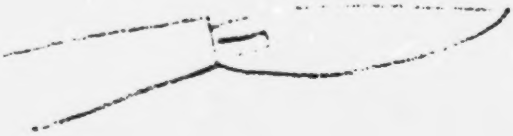
(1) CARBURIZING FLAME



It is also called a reducing or a soft flame. It is used for brazing soft soldering, silver soldering, stainless steel and aluminum welding.

inner cone = blue color
secondary flame = light blue
outer flame = orange

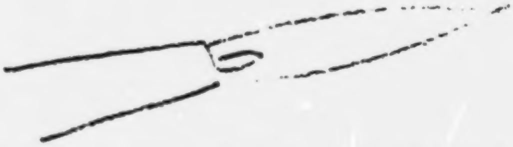
(2) NEUTRAL FLAME



It is most commonly used for most metals.

inner cone = blue color
outer cone = orange

(3) OXIDIZING FLAME



It is produced by turning on too much oxygen. It can be harmful to many metals.

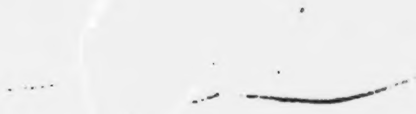
INSTRUCTOR'S SHEET

LESSON 11-D

Have the students identify the flames and write the terms used for their different cones.

neutral flame
inner cone
outer flame

oxidizing flame
inner cone
outer flame

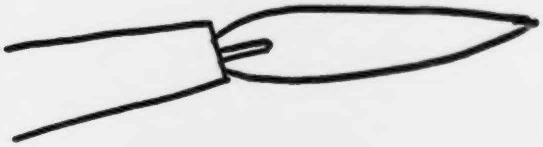


carburizing flame
inner cone
secondary cone
outer flame

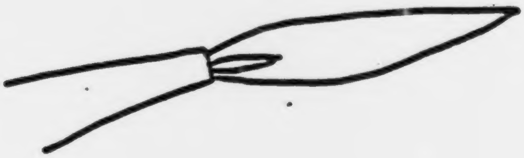
Name:______________________________

LESSON 11-D

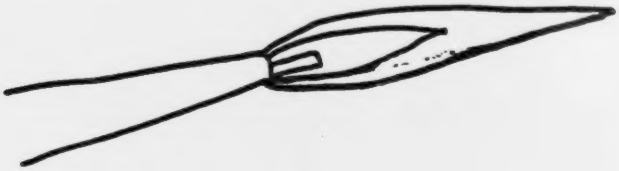
Directions: Identify the following flames.



1.____



2.____



3.____

LESSON 11-E

Have the students write the torch lighting process in the correct order.

1. Check pressure in the line pressure gauge.

2. Open oxygen and acetylene station valves.

3. Ignite the flame with a striker or a lighter.

4. Check torch tip for correct size.

5. Slowly open the oxgyen valve to get a carburizing flame.

6. Turn adjusting screws on the station regulators to the needed pressures for welding.

THE CORRECT ORDER

1. (2)

2. (6)

3. (1)

4. (4)

5. (3)

6. (5)

Name:__________________________

LESSON 11-E

Directions: Write the torch lighting process in the correct order.

1. Check pressure in the line pressure gauge.

2. Open oxygen and acetylene station valve.

3. Ignite the flame with a striker or a lighter.

4. Check torch tip for correct size.

5. Slowly open the oxygen valve to get a carburizing flame.

6. Turn adjusting screws on the station regulators to the needed pressures for welding.

LESSON 12

NUMBERS FRACTIONS AND MEASUREMENTS

INTRODUCTION: The welder must be able to make accurate measurements for cutting and assembling of pieces to be welded. He must be able to read a scale and use other measuring tools with precision. Numbers are used to measure sizes of metal plates. Fractions are used to distinguish sizes of electrodes and filler rods. The welder should be able to measure lengths of 1/16 of an inch.

PURPOSE: The purpose is to review numbers and to familiarize the students with the appearance of fractions and mixed fractions. Also to become acquainted with other units of metric measurement.

OBJECTIVE: Students will be able to identify, write and verbalize numbers, fractions and measurements with 100% accuracy.

VOCABULARY: Words used for the description of numbers, fractions and other forms of measurements.

MATERIALS:

1. Rulers
2. Yardsticks
3. Measuring Tapes
4. Flashcards

PROCEDURE:

1. Review numbers with the help of flashcards
2. Hand out Lesson 12-A. Students will circle the number they hear in the sentence.
3. Students will practice using the ruler and tape measure and measure pieces of metal in the shop and also find their length, width and thickness. Discuss writing length and width, for example 5" x 7".
4. Talk about fractions being a part of a whole and use flashcards to have students practice saying the fraction words.
5. Handout 12-B. Students should read the fraction words and write the correct fraction in the blank.
6. Handout 12-C is for listening comprehension. Students should circle the fraction number they hear in the sentence. Students should exchange their papers and correct them as the answers are written on the chalkboard.

7. Review whole numbers, and fractions. Explain mixed numbers as wholes and parts together. Have students work on Handouts 12-D. They should circle the number they hear you read.

8. Students should write down in figures the fraction or mixed fraction they hear as you read 12-E.

9. As a final exercise, students should work in pairs on Handout 12-F and check their own work.

LESSON 12-A

A. Students should circle the number they hear you read in the sentences. Concentrate on "teen" and "ty".

1. There are 16 parts to be put together.
2. There are 70 employees in that company.
3. I live 15 miles from work.
4. It costs 90 cents.
5. Only 17 people are full-time employees.
6. There are 45 screws in that machine.
7. It'll cost 25 dollars.
8. There are 109 employees in that company.
9. This machine was made in '67.
10. He earns $325 dollars per week.

B. Have the students write the number they hear in the sentence.

1. I need 14 dollars.
2. I need 18 cents more.
3. This measures 13 feet.
4. I need 15 people to help me.
5. Our shop employes 30 people.
6. This bill totals 150 dollars.
7. Give me 80 cents.
8. This costs 5,000 dollars.
9. Those machines cost 15,000 dollars.
10. We have 40 different size bolts.

Name: ____________________

LESSON 12-A

A. Directions: Circle the number you hear.

1.	60	16
2.	17	70
3.	50	15
4.	90	19
5.	7	11
6.	49	45
7.	25	29
8.	105	109
9.	57	67
10.	325	329

B. Directions: Write the number you hear.

1. ____________________
2. ____________________
3. ____________________
4. ____________________
5. ____________________
6. ____________________
7. ____________________
8. ____________________
9. ____________________
10. ____________________

INSTRUCTOR'S SHEET

LESSON 12-B

Directions: Read these words and write the correct fraction in the blank.

1. 1/2 one half

2. 1/4 one fourth

3. 3/4 three fourths

4. 2/3 two thirds

5. 1/4 one quarter

6. 3/8 three eighths

7. 15/16 fifteen sixteenths

8. 1/32 one thirty-second

9. 1/5 one fifth

10. 18/32 eighteen thirty-seconds

Name:____________________

LESSON 12-B

Directions: Read these words and write the correct fraction in the blank.

1. ____________________ one half

2. ____________________ one fourth

3. ____________________ three fourths

4. ____________________ two thirds

5. ____________________ one quarter

6. ____________________ three eighths

7. ____________________ fifteen sixteenths

8. ____________________ one thirty-second

9. ____________________ one fifth

10. ____________________ eighteen thirty-seconds

LESSON 12-C

Read the following sentences. Students should circle the number they hear.

1. I need a quarter inch wrench.

2. This is a 3/8 of an inch.

3. This is 5/16 of an inch.

4. This is 13/32.

5. Circle 11/16.

6. Circle 5/32.

7. Give me a 7/8.

8. This is 15/16 of an inch.

9. Circle 17/32.

10. Circle 7/16

Name:______________________________

LESSON 12-C

Directions: Circle the fraction that you hear.

1. a) 1/4 b) 1/8 c) 1/16 d) 1/32

2. a) 3/5 b) 3/8 c) 3/16 d) 3/32

3. a) 5/8 b) 5/16 c) 5/32 d) 5/4

4. a) 13/16 b) 3/32 c) 13/32 d) 3/8

5. a) 11/16 b) 7/32 c) 11/32 d) 7/16

6. a) 9/16 b) 5/16 c) 9/32 d) 5/32

7. a) 11/8 b) 7/8 c) 7/16 d) 11/16

8. a) 13/16 b) 13/32 c) 15/16 d) 15/32

9. a) 17/32 b) 15/32 c) 13/16 d) 15/16

10. a) 7/16 b) 7/32 c) 11/16 d) 11/32

INSTRUCTOR'S SHEET

LESSON 12-D

Explain how mixed fractions are read. 1/4 = one quarter. 1 1/4 = one and a quarter. Read the following numbers and have the students circle the fraction number they hear.

1. 1/4
2. 1/32
3. 1 1/18
4. 7/16
5. 1 1/32
6. 1/64
7. 1 1/32
8. 1 1/2
9. 27/64
10. 1 1/2
11. 1/8
12. 1 1/4
13. 15/64
14. 15/16
15. 23/32

Name:________________________

LESSON 12-D

LISTENING - FRACTIONS

Directions: Circle the number you hear.

1. a) 1 1/4 b) 1/8 c) 1/4
2. a) 1/2 b) 1 1/32 c) 1/32
3. a) 1 1/8 b) 1/18 c) 1/16
4. a) 1/16 b) 7/16 c) 1 7/16
5. a) 1 1/32 b) 1/32 c) 31/64
6. a) 1 1/64 b) 1 1/4 c) 1/64
7. a) 1/32 b) 1 1/32 c) 1 1/2
8. a) 3/8 b) 1 3/8 c) 1 5/8
9. a) 7/64 b) 1 27/64 c) 27/64
10. a) 1 1/2 b) 1/2 c) 2 1/2
11. a) 1 1/8 b) 1 7/8 c) 1/8
12. a) 1 1/4 b) 1/4 c) 2 1/4
13. a) 15/64 b) 1 15/64 c) 25/64
14. a) 15/16 b) 15/64 c) 1 15/64
15. a) 23/32 b) 13/32 c) 1 23/32

LESSON 12-E

INSTRUCTOR'S SHEET

Have the students write down in figures, the fractions or mixed numbers they hear you read.

1. 1/2
2. 3/4
3. 5 5/6
4. 1/16
5. 1 1/2
6. 1/3
7. 3 15/16
8. 1 1/32
9. 1/4
10. 2/3
11. 2 1/2
12. 5/16
13. 11/32
14. 1/8
15. 1 1/16
16. 1 1/8
17. 7 7/16
18. 5 1/4
19. 5/32
20. 4 4/32

Name:________________________

LESSON 12-E

LISTENING - FRACTIONS

Directions: Write the fractions and mixed numbers you hear the teacher read.

1. ______________________ 11. ______________________

2. ______________________ 12. ______________________

3. ______________________ 13. ______________________

4. ______________________ 14. ______________________

5. ______________________ 15. ______________________

6. ______________________ 16. ______________________

7. ______________________ 17. ______________________

8. ______________________ 18. ______________________

9. ______________________ 19. ______________________

10. ______________________ 20. ______________________

LESSON 12-F

PAIRED DICTATION

Name:____________________________

FRACTIONS

Directions: Student A reads List A to Student B.
Student B writes the numbers.
Student B reads List B to Student A.
Student A writes the numbers.

	LIST A		LIST B
1.	7/8	1.	15/16
2.	19/32	2.	21/32
3.	9/16	3.	1/2
4.	11/32	4.	17/32
5.	3/8	5.	5/32
6.	15/32	6.	11/16
7.	1/4	7.	9/32
8.	15/32	8.	7/8
9.	5/32	9.	13/32
10.	1/2	10.	1/4
11.	11/16	11.	15/32
12.	17/32	12.	3/16
13.	15/16	13.	11/32
14.	1/16	14.	9/16
15.	13/32	15.	5/8
16.	3/4	16.	1/16
17.	1/8	17.	3/8
18.	21/32	18.	15/32
19.	3/16	19.	1/8
20.	5/3	20.	3/4

LESSON 13

METAL TYPES AND SHAPES

INTRODUCTION: The welder must be able to identify the more common metals in order to select the correct welding rod for a particular weld. Also the student must be familiar with the names and shapes of various stocks.

PURPOSE: The purpose of the unit is to familiarize the students with the names of shapes, types, and sizes of metals, and words used in measuring them.

OBJECTIVE: The student will be able to:

1. identify the various shapes of stocks
2. measure types of stocks
3. obtain stock and carry out work orders

VOCABULARY: Words used in identifying and measuring metal shapes, and types.

MATERIALS:

1. Spelling squares
2. Flashcards
3. Realis (in box marked Lesson 13)

PROCEDURES:

1. Display realia and help students identify metal shapes and types. Discuss the difference between shape and type.
2. Do pronunciation drills with the help of flashcards of both shapes and types.
3. Handout 12-A. Read the passage aloud, discuss the difficult words and questions, before the students write out the answers.
4. Handout 13-B. Students should identify metal shapes and metal types.
5. Handout 13-C for listening comprehension. Students should circle the shape or the type of metal they hear in the sentence.
6. Handout 13-D. Distribute the spelling square envelopes to students and have them figure out the word without telling them what it is. They will exchange their envelopes with each other until each student has worked on all the six envelopes. Students should then work on Handout 13-D for further spelling practice.

7. Use flashcards marked 13-E to work with students on words used to measure shapes of metals: flat, length, diameter, thickness, width and gauge. See the reverse side of the flashcards for the type of metal with which the particular measure is used.

8. To reinforce the relationship between the measure words and types of metal, students should work on Handout 13-E.

LESSON 13-A

INSTRUCTOR'S SHEET

Read the following passage:

Metals are classified into two groups: ferrous and non-ferrous. Those containing iron or iron with alloys are called ferrous. They are also called cast iron or a specific type of steel. These metals will be attracted by the magnet.

Non-ferrous metals do not contain iron. They may be pure metals such as aluminum, or copper or may be alloys such as brass or bronze. They are not attracted by the magnet.

COMPREHENSION CHECK

1. What are the two classifications of metals? (ferrous and non-ferrous)
2. How would you classify iron? (ferrous)
3. What metals are not attracted by the magnet? (non-ferrous/pure)
4. What metals do not contain iron? (non-ferrous)
5. Name some pure metals. (aluminum, copper, brass and bronze)

LESSON 13-A

Name:__________________________

Read the following passage:

Metals are classified into two groups: ferrous and non-ferrous. Those containing iron or iron with alloys are called ferrous. They are also called cast iron or a specific type of steel. These metals will be attracted by the magnet.

Non-ferrous metals do not contain iron. They may be pure metals such as aluminum, or copper or may be alloys such as brass or bronze. They are not attracted by the magnet.

COMPREHENSION CHECK

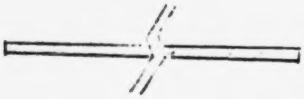
1. What are the two classification of metal?
2. How could you classify iron?
3. What metals are not attracted by the magnet?
4. What metals do not contain iron?
5. Name some pure metals.

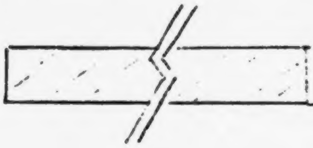
INSTRUCTOR'S SHEET

LESSON 13-B

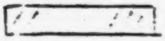
I. METAL TYPES

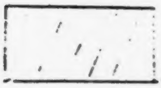
Have the students identify the following types and shapes of metals.

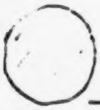

sheet

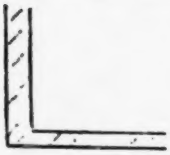


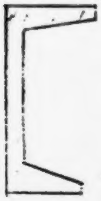
plate

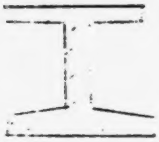

strap

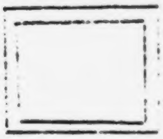

bar

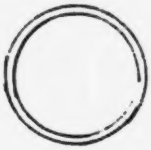

rod

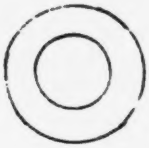

angle


channel


I-beam


square tubing


round tubing

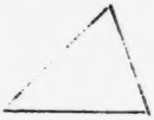

pipe

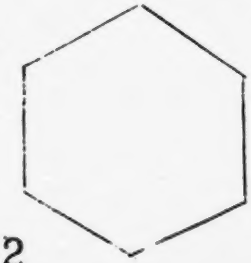
II. METAL SHAPES

square

oblong

round


triangle

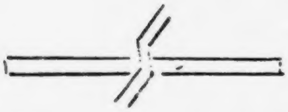

hexagon

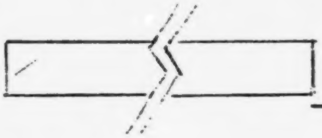
Name:______________________

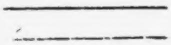
LESSON 13-B

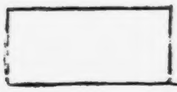
I. METAL TYPES

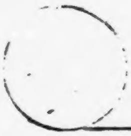
Directions: Identify the following metal types and shapes.

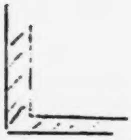

____

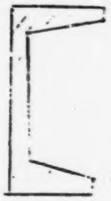

____

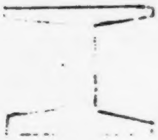

____

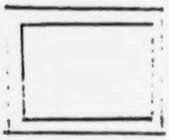

____

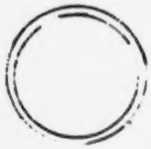

____

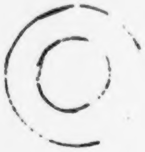

____


____

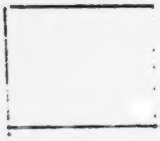

____

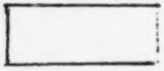

____

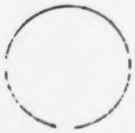

____

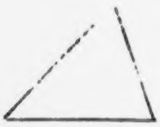

____

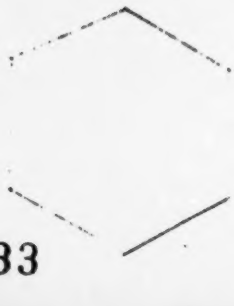
II. METAL SHAPES


____


____


____


____


____

LESSON 13-C

INSTRUCTOR'S SHEET

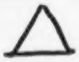
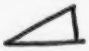
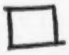
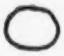
Read the following sentences out loud to the students. On their sheet they will circle the shape or type of stock they hear you say in the sentence.

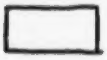
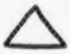
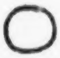
1. Circle the square
2. Which one is the triangle?
3. Get me a rod.
4. Get me a bar.
5. Where is the pipe?
6. I need some square tubing.
7. Get me the channel iron
8. I want an I beam.
9. Where is the one by two tubing?
10. Get me a two inch channel iron, not one inch.
11. Where's the strap?
12. Please pass me the two inch rod not one inch.
13. I need some one inch pipe.
14. Get me some two inch square tubing, not the one inch.
15. We need some sheet iron.

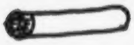
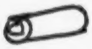
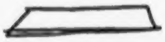
LESSON 13-C

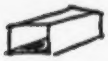
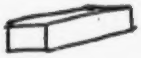
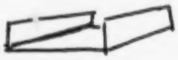
Name:______________________________

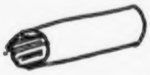
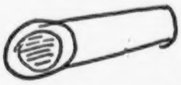
Circle the shape or the type of stock you hear in the sentence the teacher reads out.

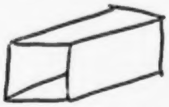
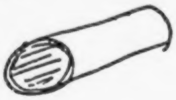
1.    

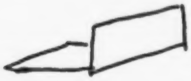
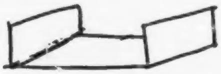
2.   

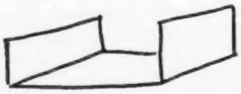
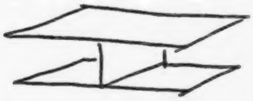
3.   

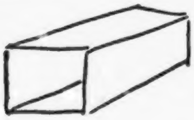
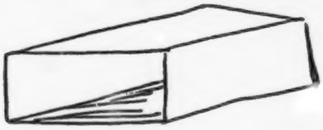
4.   

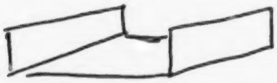
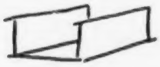
5.  

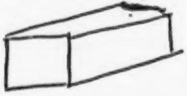
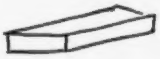
6.  

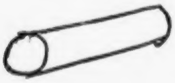
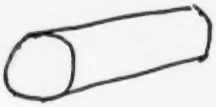
7.  

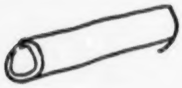
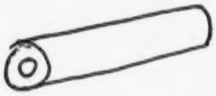
8.  

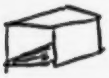
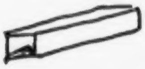
9.  

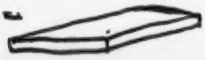
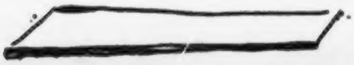
10.  

11.  

12.  

13.  

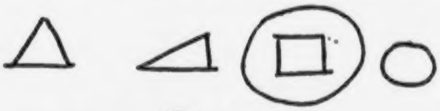
14.  

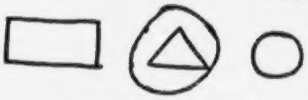
15.  

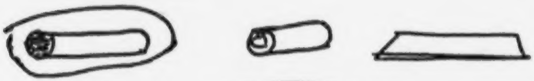
LESSON 13-C

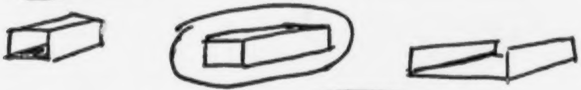
INSTRUCTOR'S SHEET

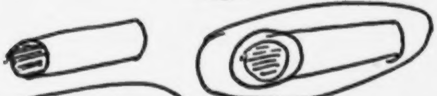
Circle the shape or the type of stock you hear in the sentence the teacher reads.

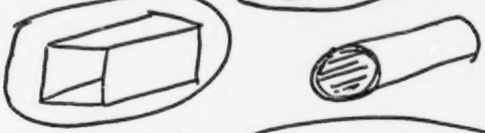
1. 

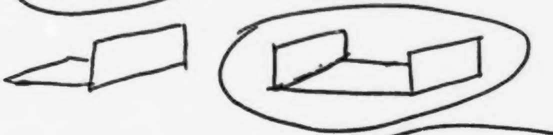
2. 

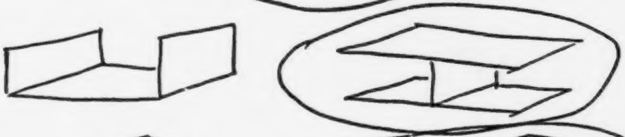
3. 

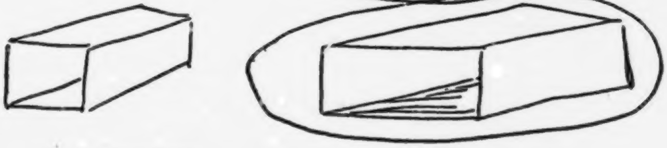
4. 

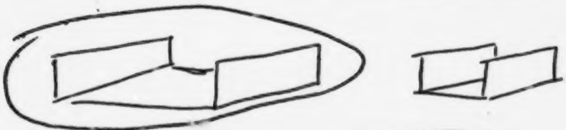
5. 

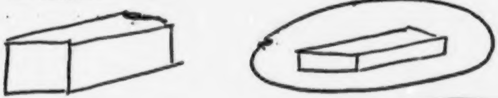
6. 

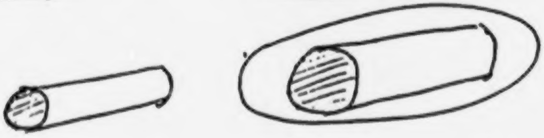
7. 

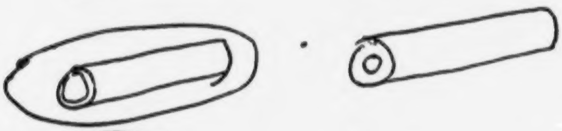
8. 

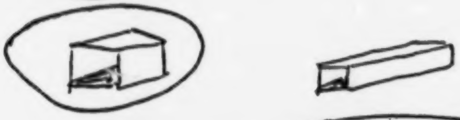
9. 

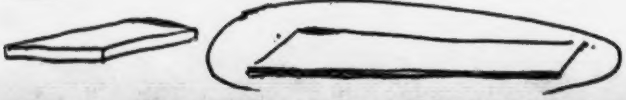
10. 

11. 

12. 

13. 

14. 

15. 

LESSON 13-D

INSTRUCTOR'S SHEET

Have the students fill in the blanks to make words which mean the type or shape of stock.

1. c h a n n e l

2. a n g l e

3. b a r

4. s h e e t

5. p l a t e

6. o c t a n g l e

7. s t r a p

8. h e x a g o n

9. r o d

10. t r i a n g l e

11. I b e a m

12. c i r c l e

13. s q u a r e t u b i n g

14. r e c t a n g l e

15. p i p e

16. s q u a r e

17. r o u n d t u b i n g

LESSON 13-D

Name:____________________________

SPELLING PRACTICE

Directions: Fill in the blanks to make words which mean either the type or shape of stock.

1. c h _ _ n _ _

2. _ _ g l _

3. _ _ r

4. s h _ _ t

5. _ l _ _ e

6. o _ t a _ _ _ _

7. s _ _ _ p

8. _ _ x a _ _ _

9. _ o _

10. t r _ _ _ g _ _

11. _ b _ _ m

12. c _ r _ _ _

13. s q _ _ _   t _ _ i _ _

14. r _ _ t _ _ _ l _

15. _ i p _

16. _ _ u a r _

17. r _ _ n _   _ _ b _ _ g

LESSON 13-E

INSTRUCTOR'S SHEET

Have the students write the words you will use to measure shapes of metals.

1. Inside diameter and thickness of a pipe.

2. Outside diameter and length of round tubing.

3. One flat and thickness of square tubing.

4. Thickness and length of a strap.

5. guage of a sheet.

6. flats of two sides of angle iron.

7. Out side diameter of bar and rod.

8. Outside flat of a channel.

9. Top to bottom of "I" beam.

LESSON 13-E

Name:____________________________

Directions: Write the words you will use to measure shapes of metals.

1. Inside diameter and __________________________ of a pipe.
2. Outside ___________________ and _____________________ of round tubing.
3. One __________________ and thickness of square tubing.
4. Thickness and ____________________ of a strap.
5. ______________________ of a sheet.
6. ___________________ of two sides of angle iron.
7. Out side ___________________ of bar and rod.
8. Outside _________________ of a channel.
9. Top to ___________________ of "I" beam.

LESSON 14

TYPES OF WELDS

INTRODUCTION: There are four types of welds which must not be confused with the types of joints. Types of welds are classed as either fillet, plug, groove or bead which is also called surfacing weld. The type of weld is determined by the amount of weld deposited at the designated seams, whereas the type of joint is the position in which the parts to be weld are positioned.

PURPOSE: The purpose of this unit is to familiarize the students with the different types of welds.

OBJECTIVE: Students will be able to identify types of welds and parts of a weld correctly.

VOCABULARY: Students will be able to master the words used in connection with the type of welding.

MATERIALS:

1. Realia
2. Flashcards
3. Handouts

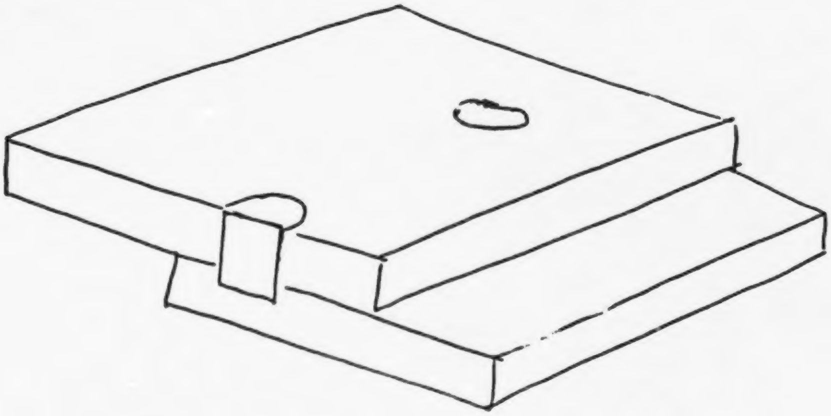
PROCEDURE:

1. Display the flashcards and have students repeat the names of the types of welds. Help the students associate the weld types with their names.
2. Write the types of welds on the chalkboard and then distribute Handout 14-B. Students should write the names of weld types they see in the pictures.
3. Discuss the names given to the different parts of a weld with the help of Handout 14-C. Make a sketch on the chalkboard and have the students take turns in identifying the parts.
4. Handout 14-D. Students should write the parts of a weld as marked.
5. Handout 14-E. Students should practice spelling out parts and types of a weld. Finally they should fill in the blanks on Handout 14-E.

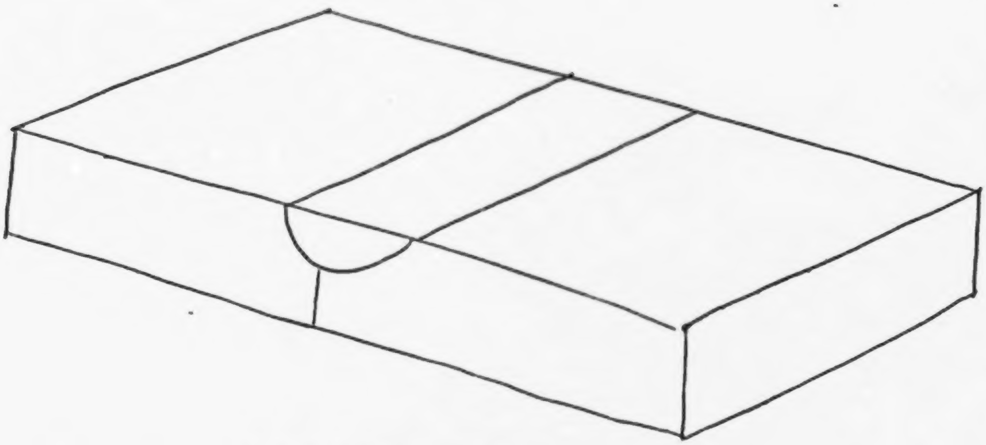
LESSON 14-A

INSTRUCTOR'S SHEET

Display these flashcards and have students repeat the names of the four types of welds.

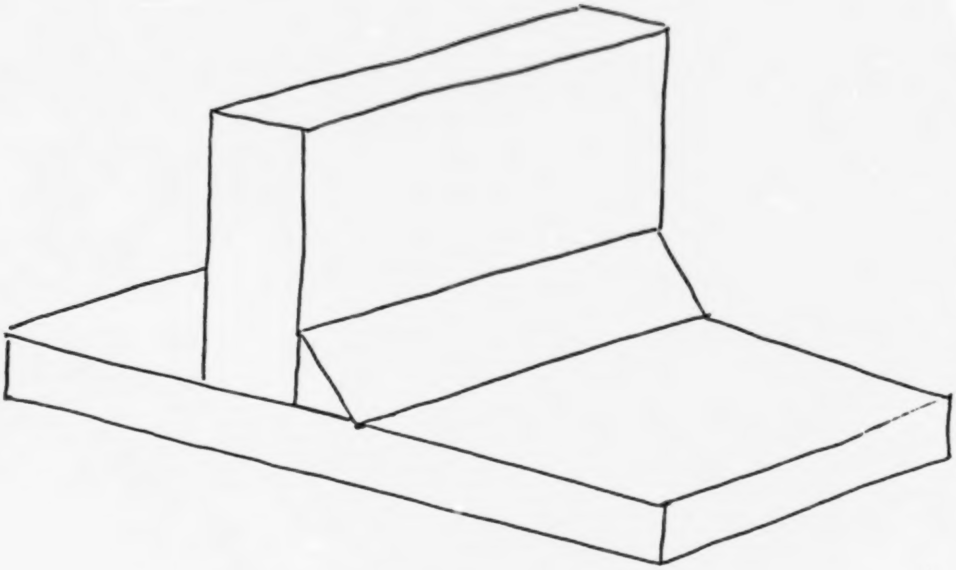


PLUG WELD

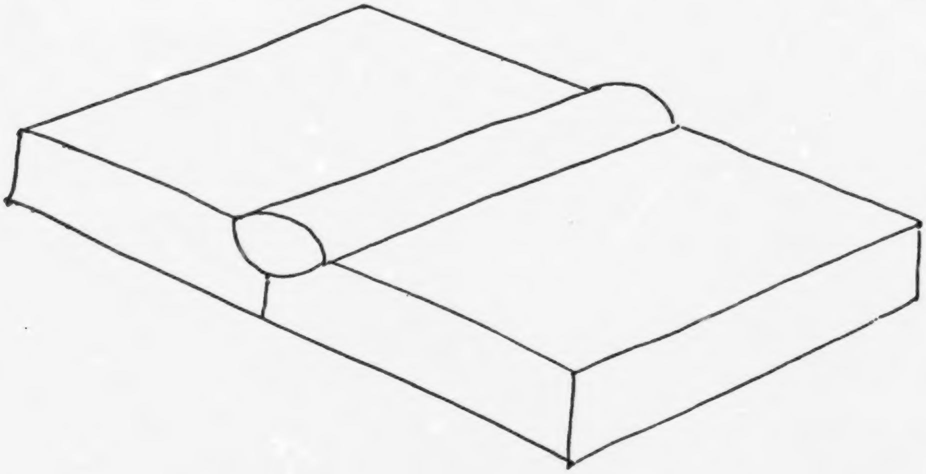


GROOVE WELD

INSTRUCTOR'S SHEET



FILLET WELD

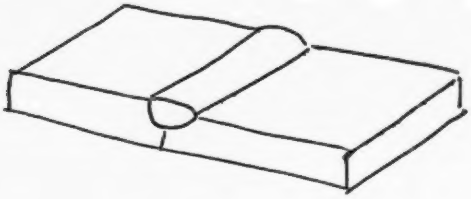


BEAD WELD OR SURFACING WELD

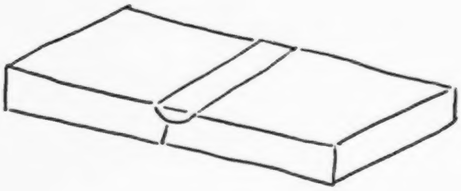
LESSON 14-B

INSTRUCTOR'S SHEET

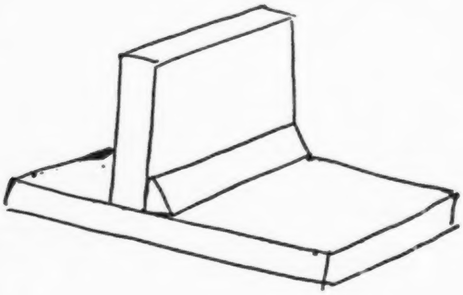
Have the students identify the type of welds.



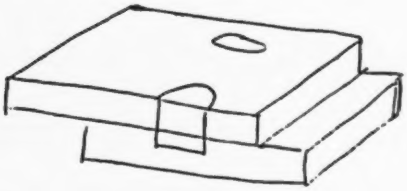
bead/surfacing weld



groove weld



fillet weld

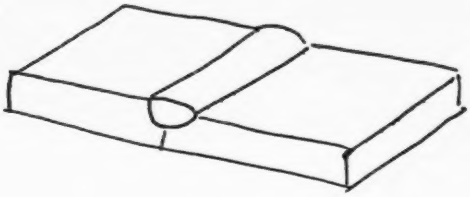


plug weld

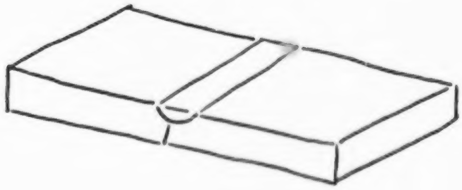
LESSON 14-B

Name:____________________________

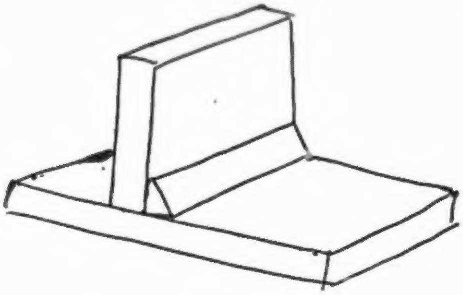
Directions: Identify the type of welds.



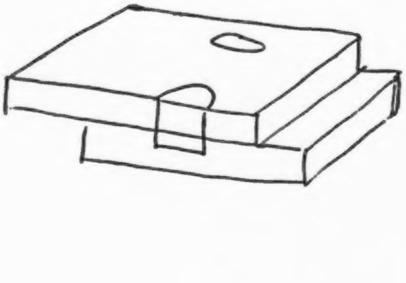
____



____



____

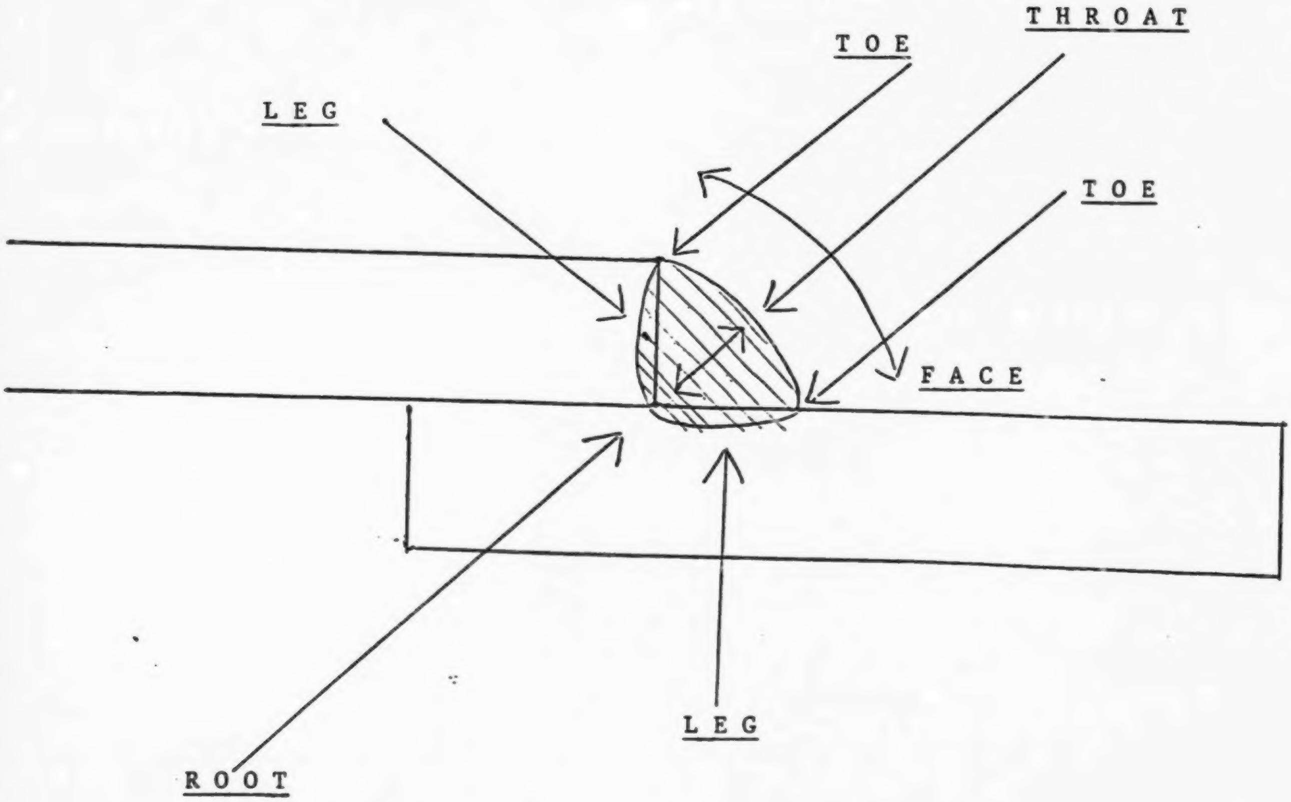


____

LESSON 14-C

Name:______________________

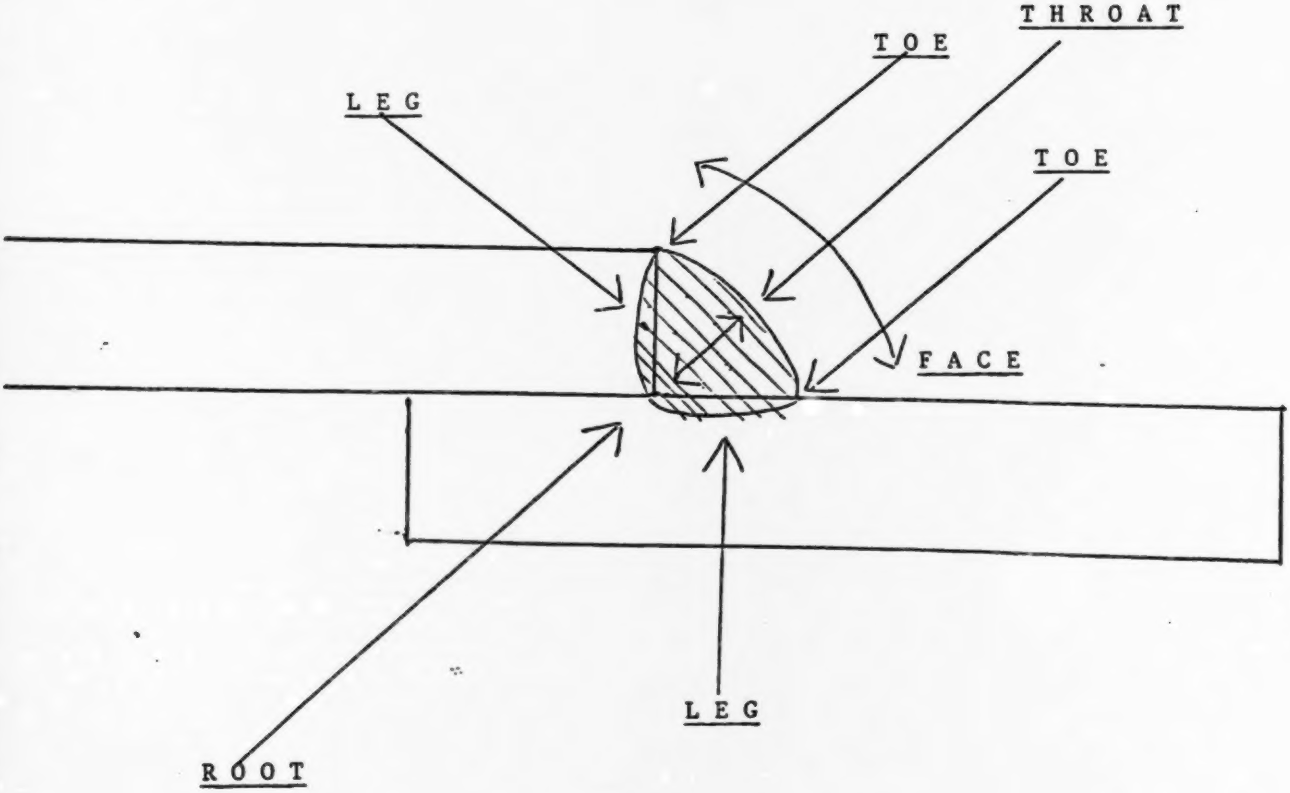
Directions: Discuss with your partner the names given to different parts of a weld.


THROAT
TOE
LEG
TOE
FACE
ROOT
LEG

LESSON 14-D

INSTRUCTOR'S SHEET

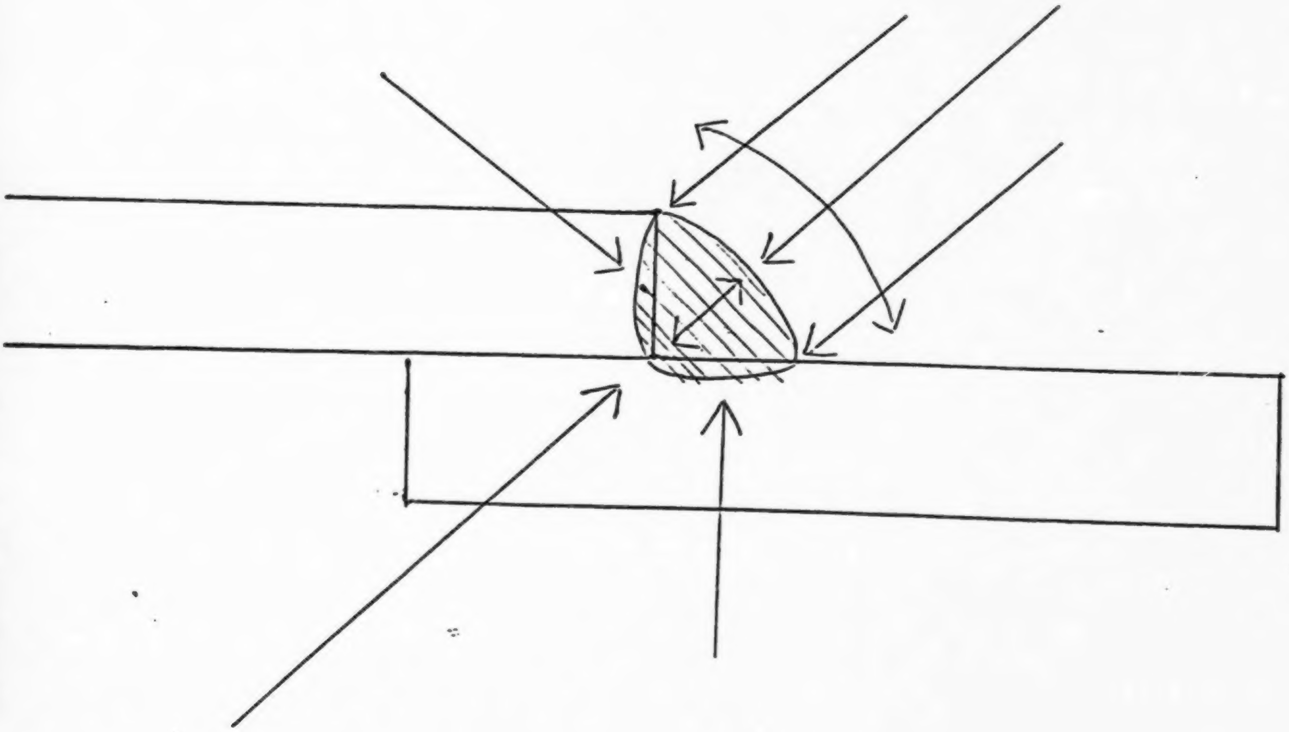
Have the students identify the parts of a weld marked with the arrows.


THROAT
TOE
LEG
TOE
FACE
ROOT
LEG

LESSON 14-D

Name:______________________________

Directions: Identify the parts of a weld marked with the arrows.



LESSON 14-E

INSTRUCTOR'S SHEET

Have the students fill in the blanks completing the names of the types and parts of a weld.

1. b e a d

2. f i l l e t

3. p l u g

4. s l o t

5. g r o o v e

6. l e g

7. t h r o a t

8. f a c e

9. r o o t

10. t o e

LESSON 14-E

Name:______________________________

Directions: Fill in the blanks completing the names of the types and parts of a weld.

1. B ___ ___ D
2. ___ I ___ ___ E T
3. P ___ ___ G
4. S L ___ ___
5. G R ___ ___ ___ ___
6. ___ ___ G
7. T H ___ ___ A ___
8. F ___ ___ E
9. ___ ___ O T
10. T ___ E

LESSON 15

WELDING JOINTS

INTRODUCTION: There are only five basic types of joints; butt, corner, lap, edge, and tee (or T). The welder has to select the correct type of joint to be used and prepare the joint.

PURPOSE: The purpose is to familiarize students with hearing and speaking about welding joints and enable them to discuss the relationship between a joint and a weld.

OBJECTIVE: The objectives of this unit are to:

1. identify weld joints.
2. pronounce and spell weld joint names.

VOCABULARY: Words used to identify weld joints.

MATERIALS:

1. Realia (in a box marked Lesson 15)
2. Flashcards
3. Handouts

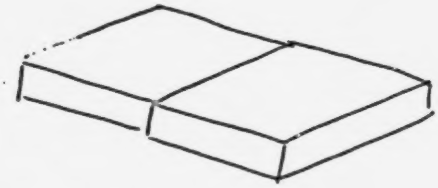
PROCEDURES:

1. Students should take a look at the realia and try to identify the joints they already know about.
2. Place flashcards of joint names along the realia and practice pronunciation.
3. Handout 15-A. Students should identify and write the names of weld joints in the blanks.

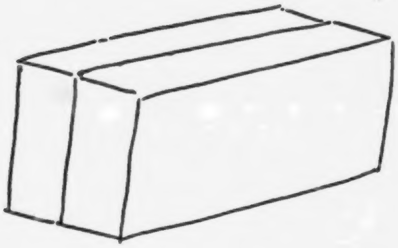
LESSON 15-A

INSTRUCTOR'S SHEET

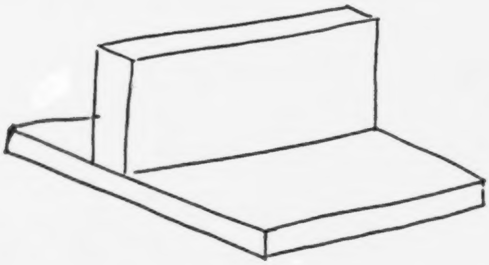
Have students identify weld joints.



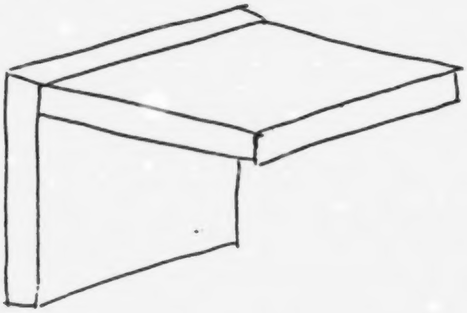
butt joint



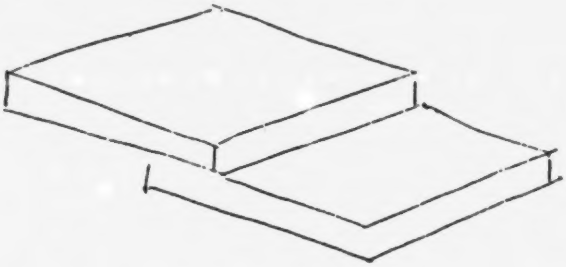
edge joint



T-joint



corner joint

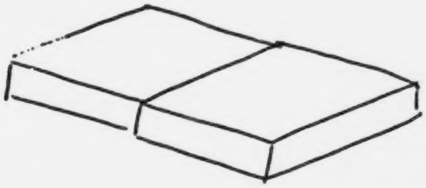


lap joint

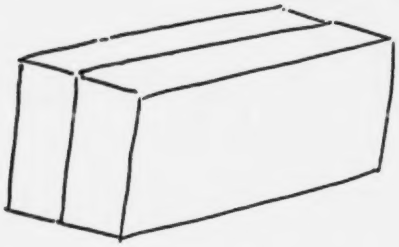
LESSON 15-A

Name:______________________________

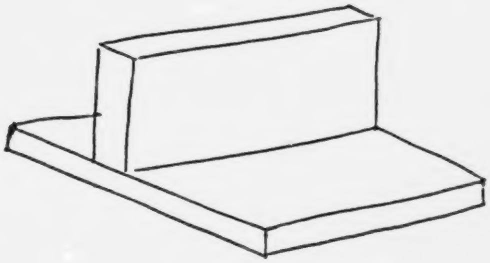
Directions: Identify weld joints.



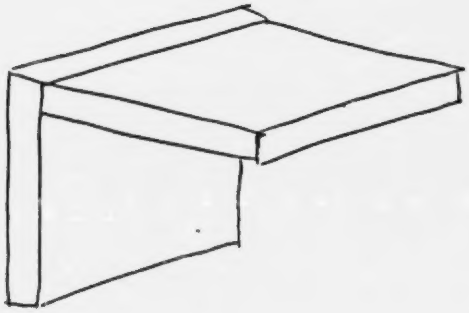
____



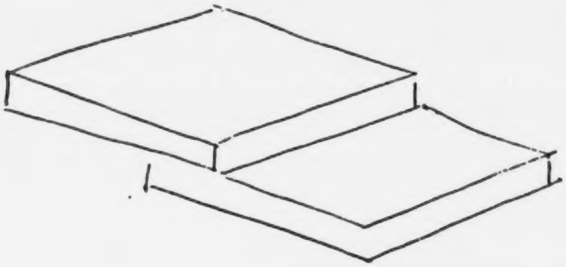
____



____



____



____

LESSON 16

WELDING GROOVES

INTRODUCTION: A groove is a weld made in the groove between the two members to be joined. The weld is adaptable for joints classified as square butt, single V, double V, single U, double U, single J, and double J.

PURPOSE: The purpose of this unit is to help the student identify, and verbalize the names for the variety of grooves.

OBJECTIVE: Unit objectives are to distinguish, identify and spell the names of all the grooves.

VOCABULARY: The vocabulary consists of words used to identify all the different grooves.

MATERIALS:

1. Flashcards
2. Handouts

PROCEDURES:

1. Display the flashcards and have the students repeat the names of grooves.
2. Say the name of a groove and have the students take turns in picking out the appropriate flashcard.
3. Display the flashcards and explain the specific features of each groove. The grooves J, V, U and Tee are named after the letters of the alphabet they look like. A double groove means that the groove occurs on two sides of the members to be joined.
4. Handout 16-A. Students should draw a line from the picture of the groove to its name.
5. Handout 16-B. Students should identify the grooves and write their names alongside

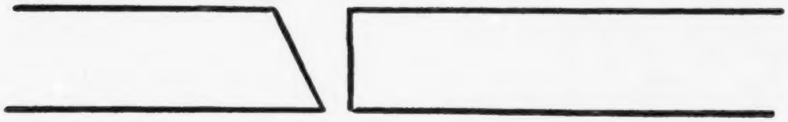
Name:________________________

LESSON 16-A

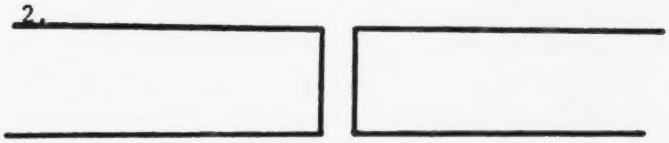
SINGLE GROOVES

Directions: Draw a line from the groove to its name.

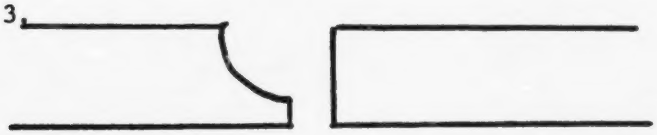
1.



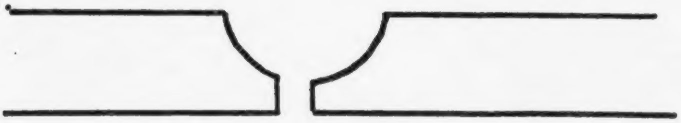
2.



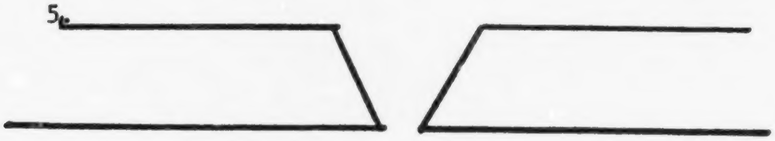
3.



4.



5.



SINGLE-VEE GROOVE

SINGLE BEVEL GROOVE

SQUARE GROOVE

SINGLE-J GROOVE

SINGLE-U GROOVE

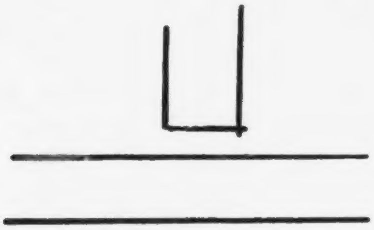
Name:__________________________

LESSON 16-A CONT'D

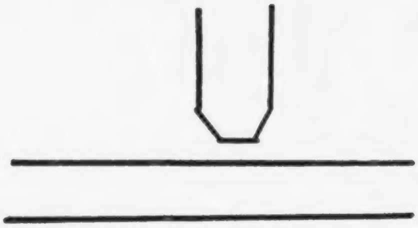
T-JOINT GROOVES

Directions: Draw a line from the groove to its name.

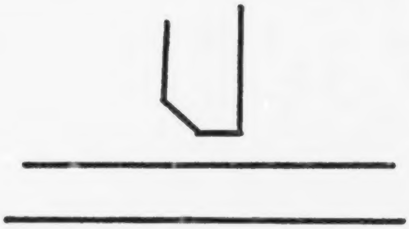
6.



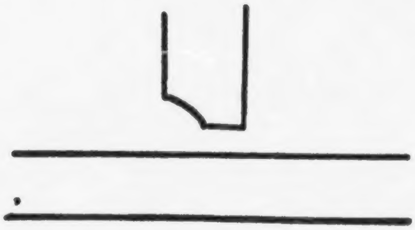
7.



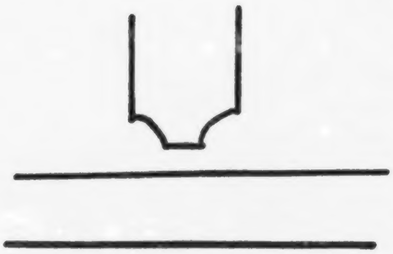
8.



9.



10.



DOUBLE J T-JOINT GROOVE

SINGLE J T-JOINT GROOVE

SQUARE T JOINT GROOVE

DOUBLE BEVEL T-JOINT GROOVE

SINGLE BEVEL T-JOINT GROOVE

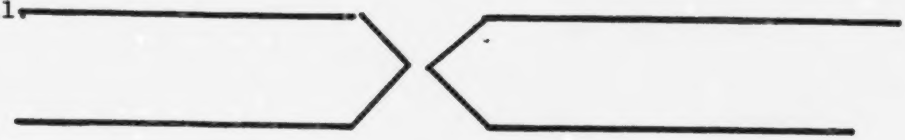
Name:________________________

LESSON 16-A CONT'D

DOUBLE GROOVES

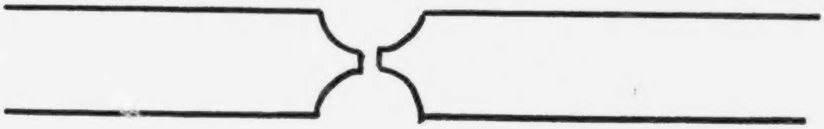
Directions: Draw a line from the groove to its name.

11.



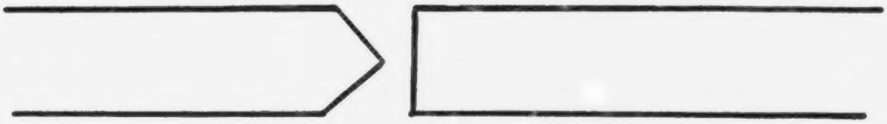
DOUBLE-U

12.



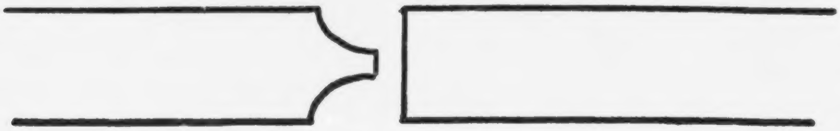
DOUBLE-J

13.



DOUBLE BEVEL

14.



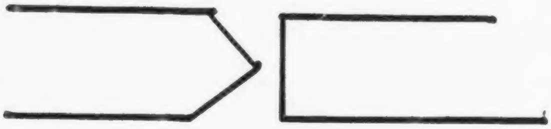
DOUBLE-VEE

Name:________________________

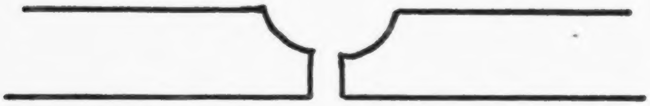
LESSON 16-B

Directions: Identify the pictures and write their names.

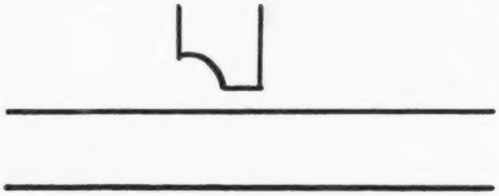
1.



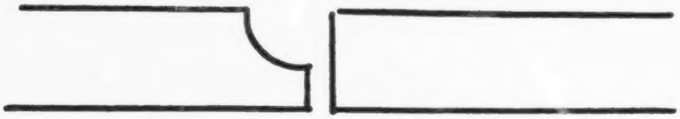
2.



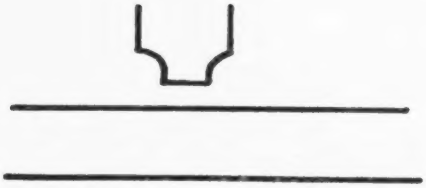
3.



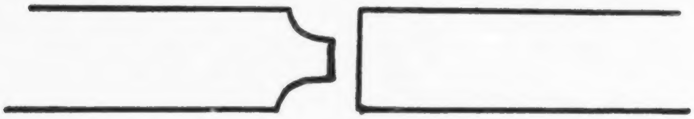
4.



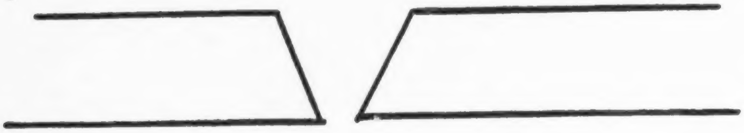
5.



6.



7.

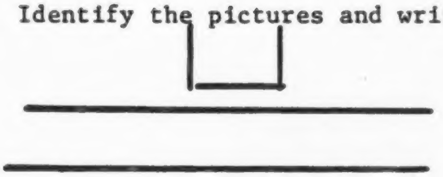


Name:________________________

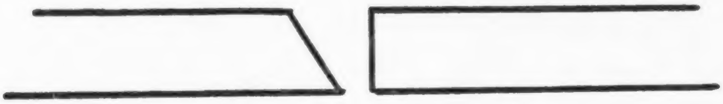
LESSON 16-B CONT'D

Directions: Identify the pictures and write their names.

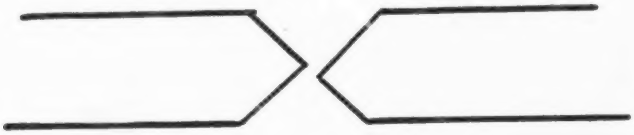
8.



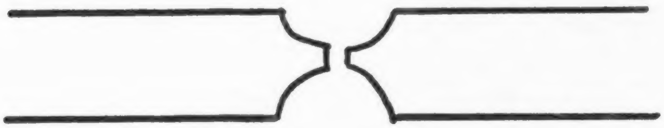
9.



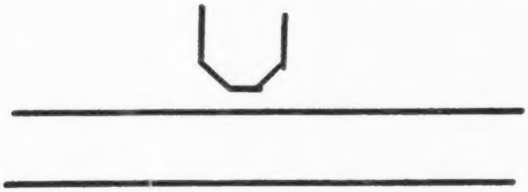
10.



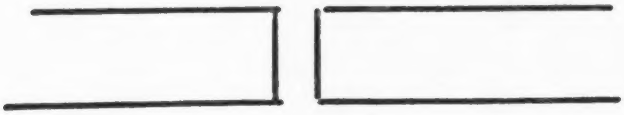
11.



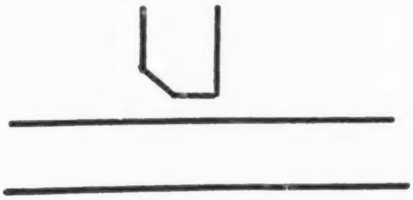
12.



13.



14.



LESSON 17

WELDING POSITIONS

INTRODUCTION:

The position of the electrode has to be adjusted so that the greatest portion of the heat is concentrated on the thickest plate, welding positions refer to the positions of the torch in relation to the plates being welded.

PURPOSE:

The purpose of the unit is to enable students to understand and use terminology related to welding positions.

OBJECTIVE:

Specific objective of this unit are:

1. to identify welding positions.
2. to read, comprehend and spell terminology related to welding positions.

VOCABULARY:

Words and phrases used in working and talking about welding positions.

MATERIALS:

1. Flashcards of welding positions.
2. Handouts.

PROCEDURES:

1. Display flashcards of positions, while identifying each one and practicing the pronunciation of each name.
2. Handout 17-A. Students should identify the welding positions they see in the pictures.
3. Handout 17-B. Students should practice with the spellings of the welding positions before they work on Handout 17-B.
4. Handout 17-C. Read the passage aloud once and discuss the difficult words. Let the students read the passage to each other. Have them write the answers to the comprehension questions.
5. Students should complete Handout 17-D as a final reinforcement exercise.

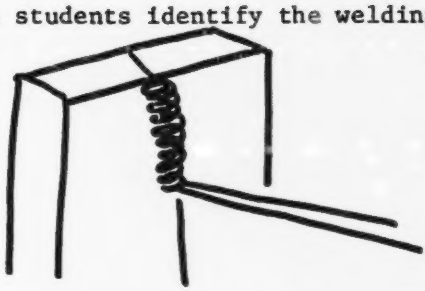
LESSON 17-A

INSTRUCTOR'S SHEET

POSITIONS

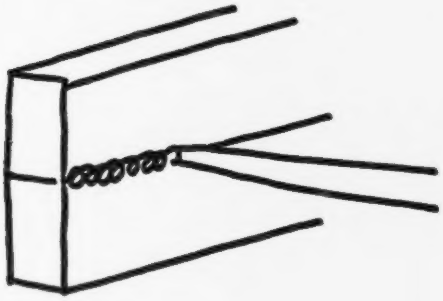
Have the students identify the welding positions.

1.



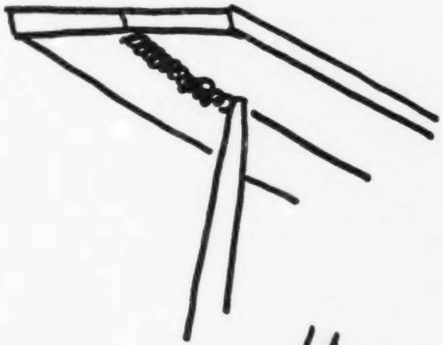
vertical

2.



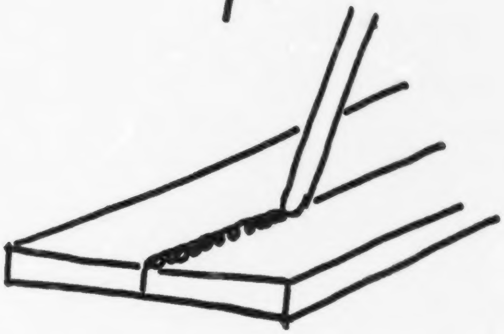
horizontal

3.



overhead

4.



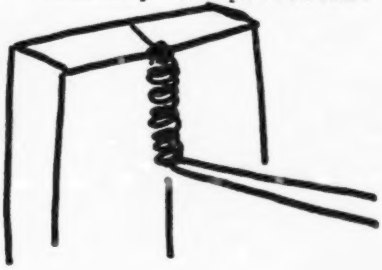
flat

LESSON 17-A

Name:______________________________

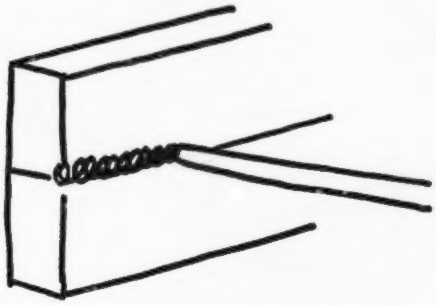
Directions: Identify the positions.

1.



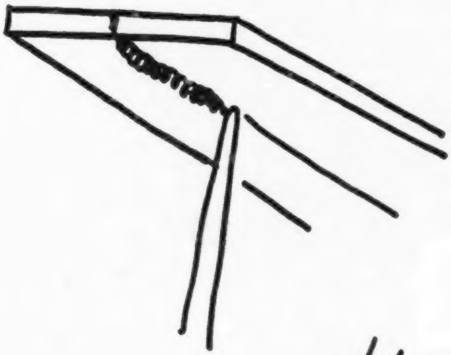
____

2.



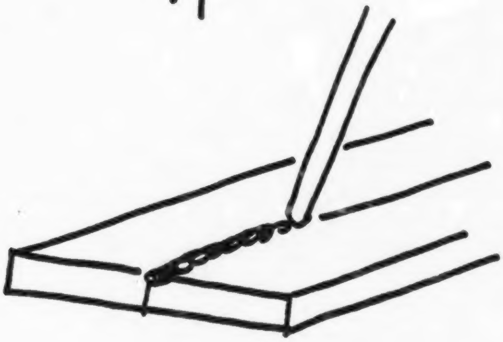
____

3.



____

4.



____

LESSON 17-B

INSTRUCTOR'S SHEET

SPELLING PRACTICE

Have the students fill in the blanks with appropriate letters to complete words to describe welding positions, joints, and grooves.

1. _h_ _o_ _r_ _i_ _z_ _o_ _n_ _t_ _a_ _l_   _p_ _o_ _s_ _i_ _t_ _i_ _o_ _n_

2. _f_ _l_ _a_ _t_   _p_ _o_ _s_ _i_ _t_ _i_ _o_ _n_

3. _o_ _v_ _e_ _r_ _h_ _e_ _a_ _d_   _p_ _o_ _s_ _i_ _t_ _i_ _o_ _n_

4. _v_ _e_ _r_ _t_ _i_ _c_ _a_ _l_   _p_ _o_ _s_ _i_ _t_ _i_ _o_ _n_

5. _b_ _u_ _t_ _t_   _g_ _r_ _o_ _o_ _v_ _e_

6. _s_ _q_ _u_ _a_ _r_ _e_   _T_   _g_ _r_ _o_ _o_ _v_ _e_

7. _s_ _i_ _n_ _g_ _l_ _e_   _b_ _e_ _v_ _e_ _l_   _g_ _r_ _o_ _o_ _v_ _e_

8. _l_ _a_ _p_   _j_ _o_ _i_ _n_ _t_

9. _e_ _d_ _g_ _e_   _j_ _o_ _i_ _n_ _t_

10. _c_ _o_ _r_ _n_ _e_ _r_   _j_ _o_ _i_ _n_ _t_

LESSON 17-B

Name:____________________________

Directions: Fill in the blanks with appropriate letters to complete words used to describe welding positions, joints and grooves.

1. h _ _ _ z o _ _ _ l   _ o _ i t _ _ _

2. _ _ _ t   p _ _ _ _ _ o n

3. _ v _ _ _ e _ _   _ _ s _ t _ _ _

4. v _ _ t _ _ _ _   _ _ _ i _ t _ _

5. b _ _ t   g r _ _ _ e

6. s q _ _ _ e   T   g _ _ _ v _

7. s i n _ _ _   b _ v _ l   _ r o _ _ _

8. l _ _   j o _ _ t

9. _ d _ e   _ o i _ _

10. c _ r _ _ _   _ _ _ n t

LESSON 17-C

INSTRUCTOR'S SHEET

READING FOR COMPREHENSION

Read the following passage and answer the comprehension questions.

THE HORIZONTAL POSITION

A weld is in a horizontal position when the joint is in on a vertical plate and the line of the weld runs on a line with the horizon.

THE VERTICAL POSITION

This position is used in fabrication of steel buildings, bridges, tanks, pipelines, ships and machinery. A vertical weld is one that runs up and down.

THE OVERHEAD POSITION

For this position proper clothing should be worn by the welder. The position of the cable and holder should be in the correct position.

THE FLAT POSITION

It is the easiest, simplest and the most economical position to work on.

COMPREHENSION QUESTIONS

1. What are the four welding positions?

    ____

    ____

    ____

    ____

2. Which is the easiest position to work on?

    ____

3. Which position is most commonly used in making tanks and ships?

    ____

4. What is the most difficult position to work on?

    ____

LESSON 17-C

Name:__________________________

READING FOR COMPREHENSION

Read the following passage and answer the comprehension questions.

THE HORIZONTAL POSITION

A weld is in a horizontal position when the joint is in on a vertical plate and the line of the weld runs on a line with the horizon.

THE VERTICAL POSITION

This position is used in fabrication of steel buildings, bridges, tanks, pipelines, ships and machinery. A vertical weld is one that runs up and down.

THE OVERHEAD POSITION

For this position proper clothing should be worn by the welder. The position of the cable and holder should be in the correct position.

THE FLAT POSITION

It is the easiest, simplest and the most economical position to work on.

COMPREHENSION QUESTIONS

1. What are the four welding positions?

   ____

   ____

   ____

   ____

2. Which is the easiest position to work on?

   ____

3. Which position is most commonly used in making tanks and ships?

   ____

4. What is the most difficult position to work on?

   ____

LESSON 17-D

INSTRUCTOR'S SHEET

Fill in the blanks and the puzzle with the following words.

1. flat
2. vertical
3. horizontal
4. overhead

1. A weld is in a horizontal position when it runs parallel to the horizon.
2. A weld that runs up and down is said to be in a vertical position.
3. Proper penetration is necessary on a overhead weld.
4. Welding is fastest and easiest in the flat position.

								■	■
								■	■
				■	■	■	■	■	■

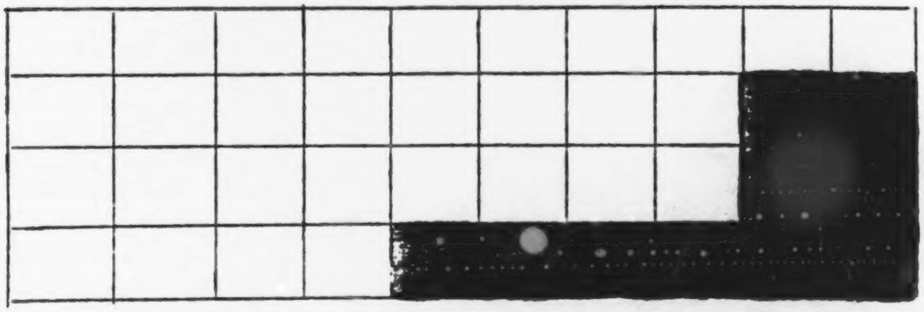
LESSON 17-D

Name:__________________________

Directions: Fill in the blnaks and the puzzle with the following words.

1. flat
2. vertical
3. horizontal
4. overhead

1. A weld is in a ________________________ position when it runs parallel to the horizon.
2. A weld that runs up and down is said to be in a ______________________.
3. Proper penetration is necessary on a __________________________ weld.
4. Welding is fastest and easiest in the ______________________ position.



LESSON 18

DIMENSIONS AND RODS

INTRODUCTION: The arc welding electrode does two things: one, it completes the welding circuit when an arc is struck and two, it provides filler metal for the weld deposit. In most cases, the electrode should have the same compositions as the metal to be welded. The coatings on the electrodes vary according to the purpose of the weld.

PURPOSE: The purpose is to familiarize students with the dimensions and names of electrodes.

OBJECTIVE: Unit objectives are:

1. to know how to choose a welding rod.
2. to comprehend vocabulary related to identifying electrodes.
3. to understand the classification of electrodes.

VOCABULARY: It consists of words used in selecting and talking about electrodes.

MATERIALS:

1. Handouts
2. Display card

PROCEDURES:

1. Handout 18-A. Discuss the meanings of words to be used in the blanks before the students do the exercise.
2. Hanout 18-A is an exercise in reading comprehension. Discuss the meanings of words before the students attempt the exercise.
3. Handout 18-C. Discuss the underlined words and explain the meaning of the words: symbol, prefix, digits, indicate, strength, coating and current, with reference to the numbers on the electrode.
4. Handout 18-D. Students should match the definitions to their words with the help of 18-C.

INSTRUCTOR'S SHEET

LESSON 18-A

DIMENSIONS AND RODS

Have the students fill in the blanks using the given words:

- electrode
- coating
- joint
- strength
- size
- type
- thickness

The following points have to be considered when choosing a welding rod:

The ________type________ of metal being welded. The ____thickness____ of metal being welded should be about the same as the diameter of the electrode. The type of _____joint_____ being made, the ______strength______ of the weld and the ______size______ of the required weld. Use the ______electrode______ until the stubb is down to 1½" to 2" long. Store electrodes in a dry place where ______coating______ cannot be damaged.

Name:____________________

LESSON 18-A

DIMENSIONS AND RODS

Directions: Fill in the blanks using the given words.

electrode
coating
joint
strength
size
type
thickness

The following points have to be considered when choosing a welding rod:

The ____________________ of metal being welded. The ____________________ of metal being welded should be about the same as the diameter of the electrode. The type of ____________________ being made, the ____________________ of the weld and the ____________________ of the required weld. Use the ____________________ until the stubb is down to 1½" to 2" long. Store electrodes in a dry place where ____________________ cannot be damaged.

LESSON 18-B

INSTRUCTOR'S SHEET

Students should fill in the blanks using the electrode names:

special alloy, cast iron, non-ferrous

Most arc welding is done with electrodes in the mild steel group. For welding various kinds of steel alloys __special__ __alloy__ electrodes are used. For welding of cast iron, __cast__ __iron__ electrodes are used and __non-ferrous__ electrodes are used for welding such metals as aluminum, copper and brass.

LESSON 18-B

Name:__________________________

Directions: Fill in the blanks using the electrode names:

special alloy, cast iron, non-ferrous

Most arc welding is done with electrodes in the mild steel group. For welding various kinds of steel alloys ____________ ____________ electrodes are used. For welding of cast iron,____________ ____________ electrodes are used and __________________ electrodes are used for welding such metals as aluminum, copper and brass.

Name:____________________________

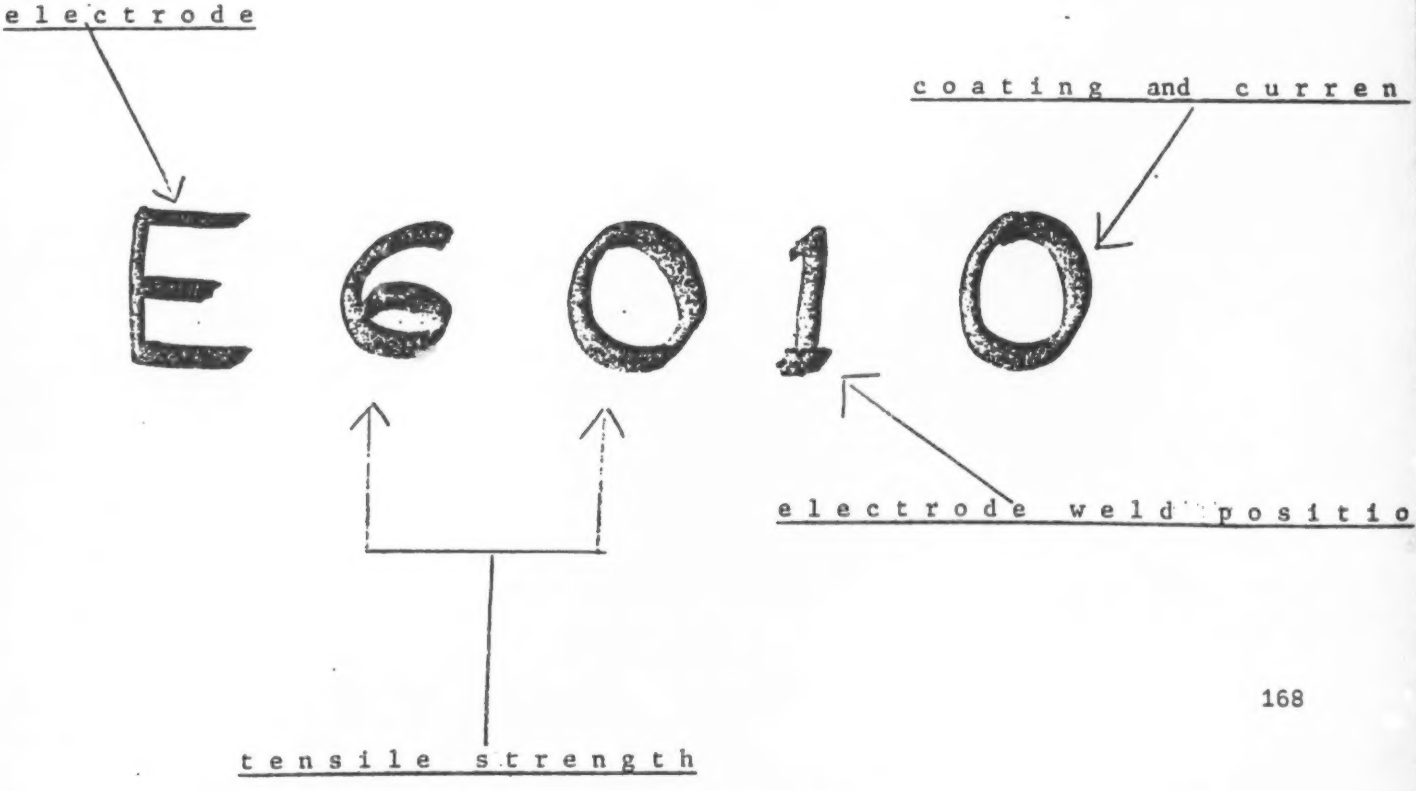
LESSON 18-C

IDENTIFYING ELECTRODES

Directions: Discuss the following information in the class.

Each type of electrode has been given a special symbol, for example: E 6010 or E 7010. Most electrodes have a four digit number after the E.

E	The prefix E stands for electrode or electric welding.
70	The first two digits indicate pounds per square inch of tensile strength
1	The third digit shows the welding position (flat, horizontal, overhead or vertical).
0	The fourth digit indicates the type of coating and the current to be used with the electrode.


electrode
coating and curren
E 6010
electrode weld positio
tensile strength

LESSON 18-D

Match the words to their definitions in the second column.

1. The fourth digit number __d__
2. The third digit number __c__
3. The first two digits __a__
4. The prefix __b__

a. show the tensile strength

b. "E" stands for electric welding

c. shows the welding position.

d. indicates the coating and current to be used with the electrode.

Name:_________________________

LESSON 18-D

Directions: Match the words to their definitions in the second column.

1. The fourth digit number ____
2. The third digit number ____
3. The first two digits ____
4. The prefix ____

a. show the tensile strength

b. "E" stands for electric welding

c. shows the welding position

d. indicates the coating and current to be used with the electrode

LESSON 19

WELDING DEFECTS

INTRODUCTION: Some defects appear in a welder's work and may be due to several reasons such as the current setting, welding speed, length of arc, type and size of electrode, angle of eledtrode, base metal impurities, and incorrent size of welding grooves.

PURPOSE: The purpose of Lesson 19 is to help students comprehend the instructor, while discussing defects in their welding.

OBJECTIVE: The objectives of the unit are to assist students in:

1. identifying welding defects
2. defining welding defects
3. spelling welding defect terminology correctly
4. pronouncing welding defect words

VOCABULARY: Words used in talking about welding defects.

MATERIALS:

1. Realia showing defective welding
2. Handouts
3. Flashcards

PROCEDURE:

1. Display flashcards and stress pronunciation of welding defects and discuss each problem with the students.
2. Handout 19-A. Students should match each picture with the defect terminology.
3. Handout 19-B. Students should write the names of the defects they see in the pictures
4. Display flashcards again and have students spell out the names of the defects and take turns writing the names on the chalkboard.
5. Handout 19-C. Final spelling practice.

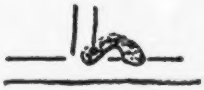
LESSON 19-A

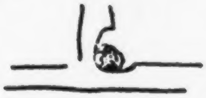
INSTRUCTOR'S SHEET

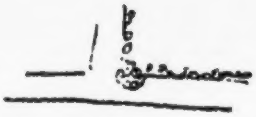
WELDING DEFECTS

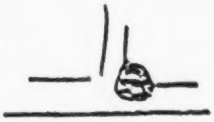
Have the students match the welding defect terminology with the correct picture.

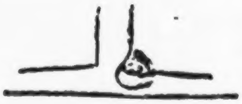
1. porosity d
2. spatter c
3. slag inclusion g
4. overlap i
5. warping h
6. undercut b
7. poor penetration e
8. poor fusion a
9. cracked j
10. distortion f

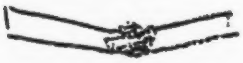
a.


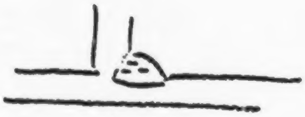
b.


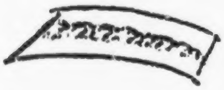
c.


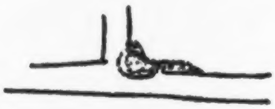
d.


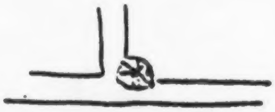
e.


f.


g.


h.


i.


j.


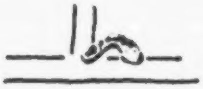
LESSON 19-A

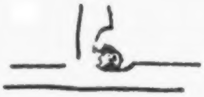
Name:____________________

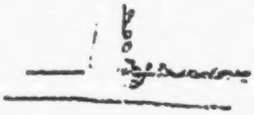
WELDING DEFECTS

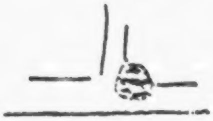
Directions: Match the defect with the correct picture.

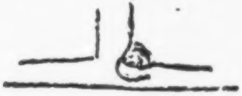
1. porosity ___
2. spatter ___
3. slag inclusion ___
4. overlap ___
5. warping ___
6. undercut ___
7. poor fusion ___
8. poor penetration ___
9. cracked ___
10. distortion ___

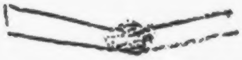
a.


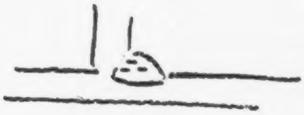
b.


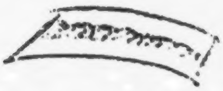
c.


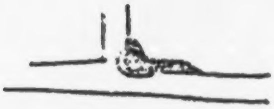
d.


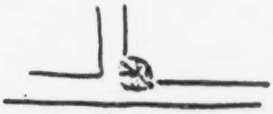
e.


f.


g.


h.


i.


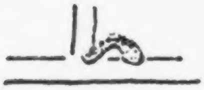
j.


LESSON 19-B

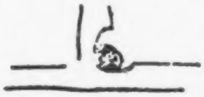
INSTRUCTOR'S SHEET

Have the students write the name of the welding defect they see in each picture.

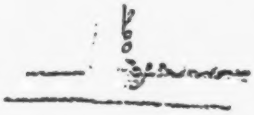
1. poor fusion



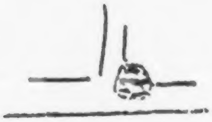
2. undercut



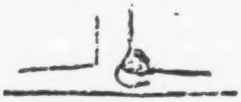
3. spatter



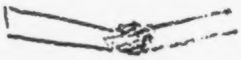
4. porosity



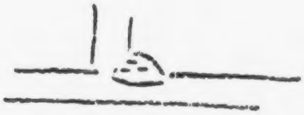
5. poor penetration



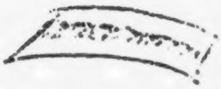
6. distortion



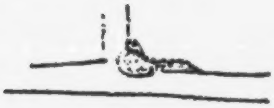
7. slag inclusion



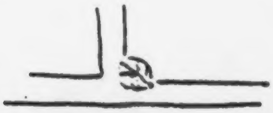
8. warping



9. overlap



10. cracked

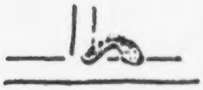


LESSON 19-B

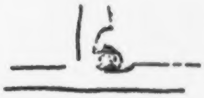
Name:______________________

Directions: Write the welding defect you see in each picture.

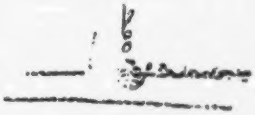
1. ____________________



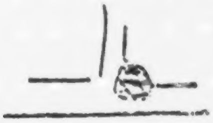
2. ____________________



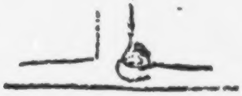
3. ____________________



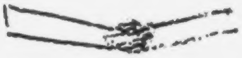
4. ____________________



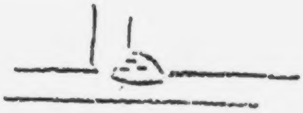
5. ____________________



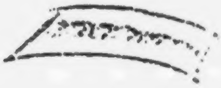
6. ____________________



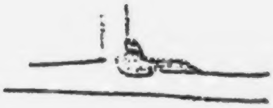
7. ____________________



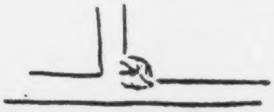
8. ____________________



9. ____________________



10. ____________________

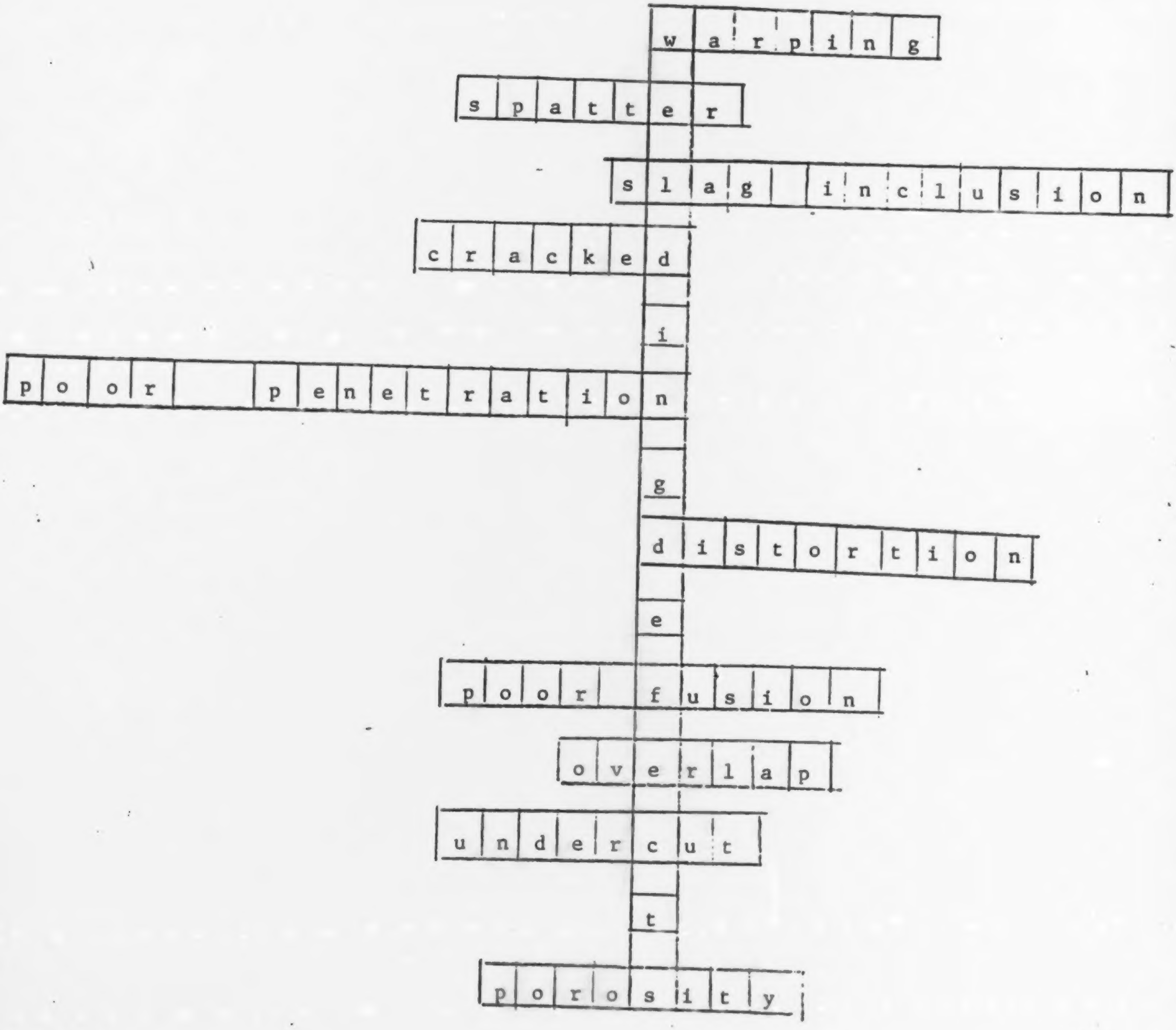


LESSON 19-C

INSTRUCTOR'S SHEET

SPELLING QUIZ'

Have students fill in the blanks.



warping

spatter

slag inclusion

cracked

i

poor penetration

g

distortion

e

poor fusion

overlap

undercut

t

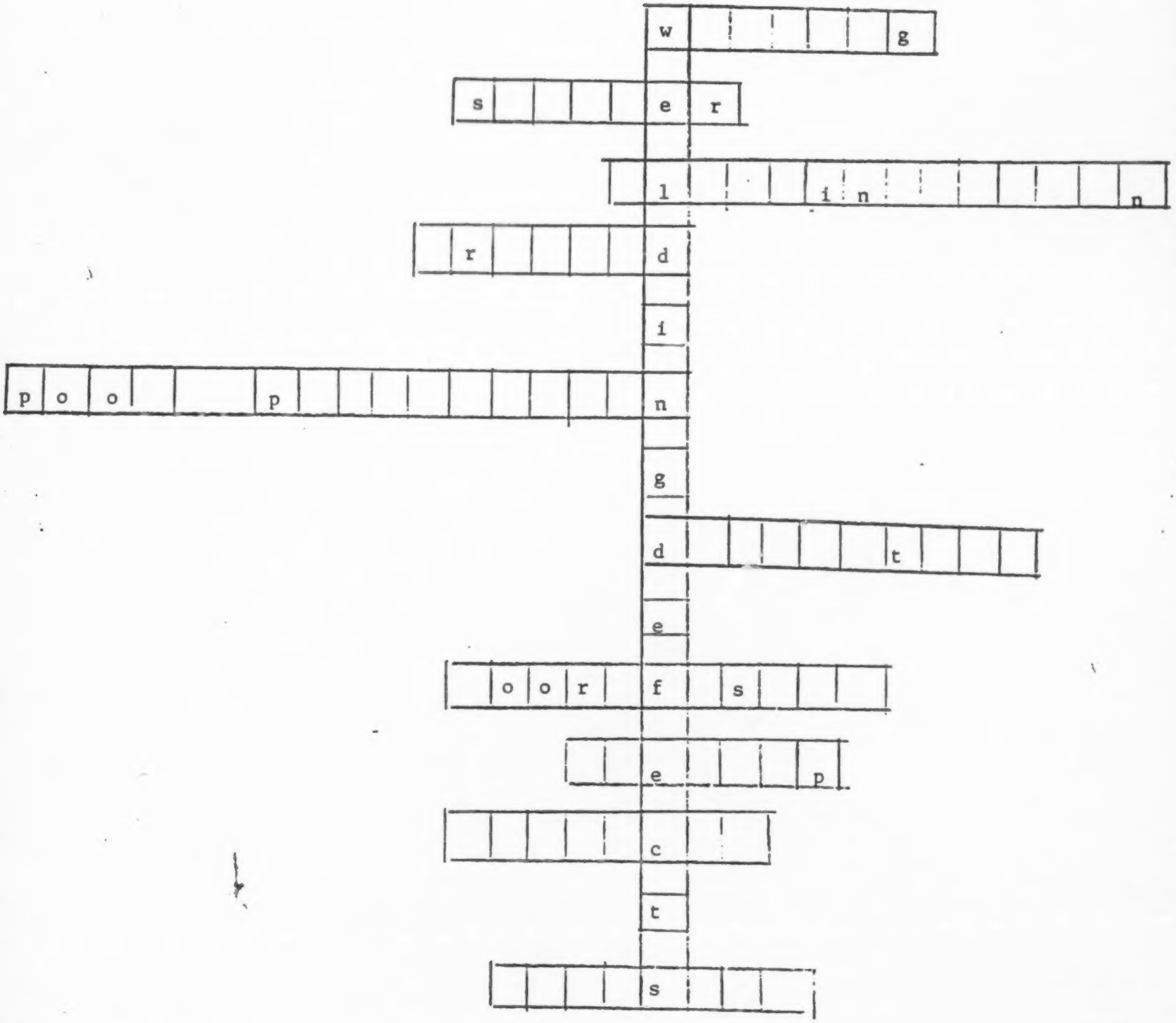
porosity

LESSON 19-C

Name:______________________________

SPELLING QUIZ

Directions: Fill in the blanks to make words describing welding defects.


w g
s e r
l i n n
r d
i
p o o p n
g
d t
e
o o r f s
e p
c
t
s

LESSON 20

CAUSES OF WELDING PROBLEMS AND SOLUTIONS

INTRODUCTION: The student would have encountered several of the most common welding problems. This unit will discuss these problems and solutions. There are several possibilities available for corrective measures.

PURPOSE: The purpose is to prepare students to make verbal connections between a welding defect and its cause.

OBJECTIVE: The objective of this unit is to enable the students to identify the causes of welding problems and their solutions.

VOCABULARY: Terminology used in the description of welding problems and their solutions.

MATERIALS:

1. Realia with welding defects
2. Flashcards

PROCEDURE:

1. The teacher should elicit information from the students regarding the causes of welding problems and their corrective measures.
2. Handout 20-A. The teacher should read the type of defects and the students should respond with the given solutions.
3. Handout 20-B. Students are going to work in pairs on the dialog activities. Distribute paper B to the other partner. The students are not to look at each others papers. Let each student review his paper and dicuss any difficult words before the activity commences. Speakers must listen to each others dialog carefully in order to choose the correct responses from their sheets, since all the responses are grammatically correct.

LESSON 20-A

Name:__________________________

CAUSES AND SOLUTIONS OF DEFECTS

Directions: Discuss the welding defects and their causes. What will you do to rectify (correct) them?

1. SPATTER	1. The current was too high. 2. The arc was too long. 3. The electrode was faulty.
2. POOR FUSION	1. The current was too low. 2. The welding speed was incorrect. 3. The arc was too long. 4. The wrong electrode was used. 5. The work was not properly prepared.
3. UNDERCUT	1. The current was too high. 2. The speed was too fast. 3. The arc was too long. 4. Wrong size of electrode was used. 5. The electrode was used at the wrong angle.
4. POROSITY/PORUS WELDS	1. The wrong electrode was used. 2. The current was too low. 3. The arc was too short. 4. The speed was incorrect. 5. There were impurities in the base metal.
5. SLAG INCLUSION	1. The current was too low. 2. The arc was too short. 3. The speed was incorrect. 4. The electrode was not handled correctly.
6. POOR PENETRATION	1. The speed was too fast. 2. The current was too low. 3. The electrode was too large. 4. There were impurities in the base metal. 5. The welding groove was of the wrong size.
7. OVERLAP	1. The current was too low. 2. The arc was too short.
8. CRACKS	1. The cooling was too fast. 2. Wrong electrodes were used.
9. WARPING	1. The joint was too hot. 2. The weld metal shrank 3. The parts were not clamped together correctly.
10. DISTORTION	1. The metals were heated unevenly. 2. The joint was too hot. 3. The parts to be joined were not placed correctly.

LESSON 20-B

INSTRUCTOR'S SHEET

DEFECTS AND SOLUTIONS DIALOG ACTIVITIES

Have students work in pairs. Distribute paper A to one partner and paper B to the other. They should not look at each others papers. Speakers must listen carefully to each others dialog in order to choose the correct response.

OVERLAP

A. Looks like you have an overlap.
B. Really? How did that happen?

A. Probably the current was too low.
B. I'd better do it over.

A. I would. It its still not any better, shorten the arc
B. OK. Thanks.

POROUS WELDS

A. How come these welds lool porous?
B. There could be many reasons for it.

A. Well, I have checked the electrode, the current and the speed.
B. There could be impurities in the base metal or the arc could be too short.
A. Gee thanks! I didn't think of that.

DISTORTION

A. What can I do to stop distortion from happening again?
B. You can check on the eveness of heating.

A. Yes, that seems OK. Could there be any other reason?
B. The parts to be joined were not clamped properly.

Name:______________________

LESSON 20-B

DEFECTS AND SOLUTIONS DIALOG ACTIVITIES

A
FIRST SPEAKER

Directions:

1. You and B are going to have three short conversations about causes and solutions of welding defects.
2. Do not look at B's paper.
3. Listen carefully to his dialog and choose the correct answer.
4. If his answer is not correct tell him "I don't think that is the right answer."

OVERLAP

1. Looks like you have an overlap.

3. a) Probably you used the wrong electrodes
   b) Probably the current was too low.

5. a) I would. If it's still not any better, shorten the arc.
   b) I would. If it's still not any better, clean the base metal.

PORQUS WELDS

1. How come these welds look porous?

3. a) Well, I have checked the electrode, the current and the speed.
   b) Well, I don't want to check anything.

5. a) Gee thanks! I didn't think of that!
   b) Oh, I'm sorry about that.

DISTORTION

1. What can I do to stop distortion from happening again?

3. a) Yes, I already did that.
   b) Yes, that seems OK. Could there be any other reason?

Name:________________________

LESSON 20-B

DEFECTS AND SOLUTIONS DIALOG ACTIVITIES

B
SECOND SPEAKER

Directions:

1. You and A are going to have three short conversations about causes and solutions of welding defects.
2. Do not look at A's paper.
3. Listen to A's dialog and give him the correct answer.
4. If A's answer is not correct tell him "I don't think that is correct."

OVERLAP

2. a) Really? I know it.
   b) Really? Why did that happen?

4. a) I'd better not do it again.
   b) I'd better do it over.

6. a) OK. Thanks.
   b) OK. I'd better change the electrode.

POROUS WELDS

2. a) There can be many reasons for it.
   b) There can be only one reason for it.

4. a) There is nothing else to look into.
   b) There could be impurities in the base metal or the arc could be too short.

DISTORTION

2. a) You can do nothing to stop it.
   b) You can check on the eveness of heating.

4. a) You used the wrong electrode.
   b) The parts to be joined were not clamped properly.

LESSON 21

READING BLUEPRINTS

INTRODUCTION:

The welder is required to read a blueprint which describes how the parts of an assembly are put together. It will describe where the welds are to be located, the type of joint, the size and amount of weld to be deposited. The welding symbols have been standardized by the AWS-American Welding Society.

PURPOSE:

The purpose of this unit is to acquaint the students with the common welding symbols.

OBJECTIVES:

The students will be able to read blueprint markings and carry out instructions on blueprints.

VOCABULARY:

Words used in referring to basic and supplementary welding symbols.

MATERIALS:

1. A blueprint showing welding symbols.
2. Spelling envelopes.
3. Handouts

PROCEDURE:

1. Students should study Handout 21-A and enunciate the symbol words and discuss their meanings.
2. Display the flashcards and the students should practice the pronunciation of welding symbols.
3. Students should practice further with the flashcards to identify the symbols perfectly. Hold up the flashcards as students take turns in writing the symbols on the chalkboard.
4. Handout 21 B. Students should write the names of welding symbols they see in the pictures.
5. Students should shade the desired welding area as indicated by the symbols in Handout 21-C.
6. Handout 21-D. To reinforce the welding symbols, students are asked to draw the symbol for the weld they see shaded in the picture.
7. Handout 21-E. As a final reinforcement, students should draw the symbols they see written next to the blank squares.
8. Students should work with the spelling envelopes. Interexchanging until each student has worked on all the envelopes.
9. Have the students look at the blueprint and discuss the symbols.

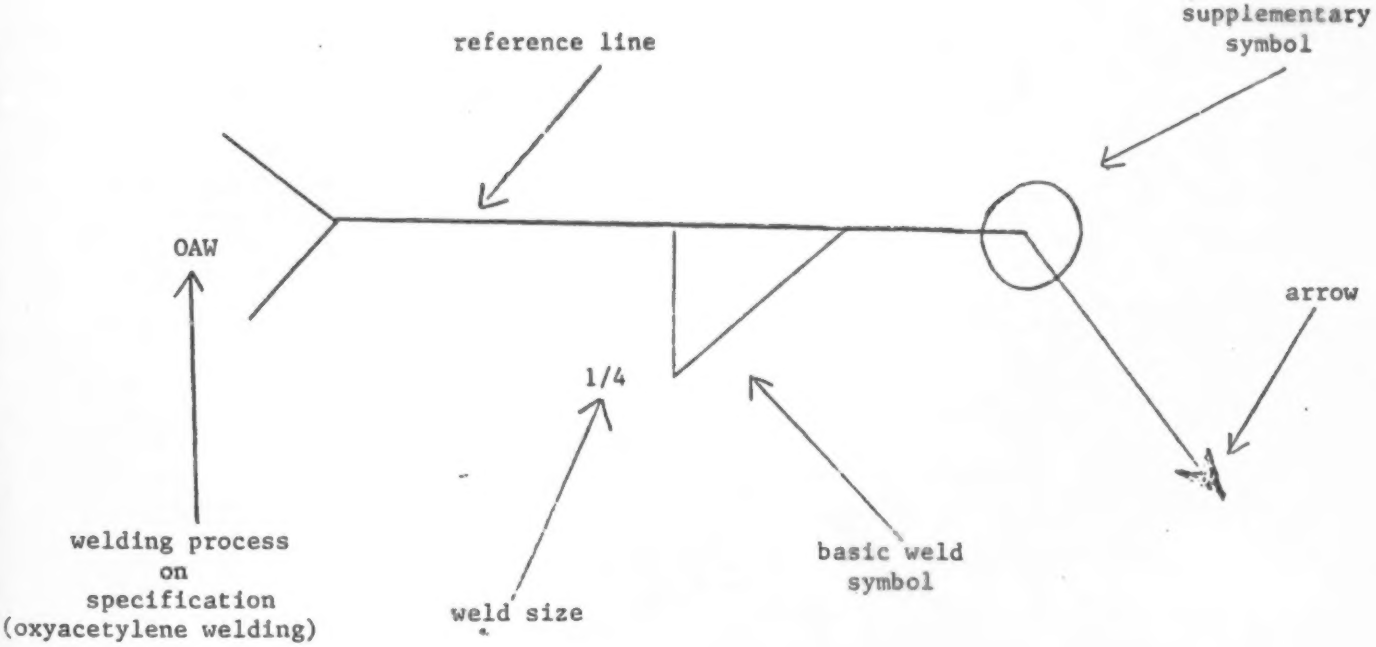
LESSON 21-A

Name:__________________________

WELDING SYMBOLS

Directions: Study the diagram of a sample symbol below and discuss it in class.

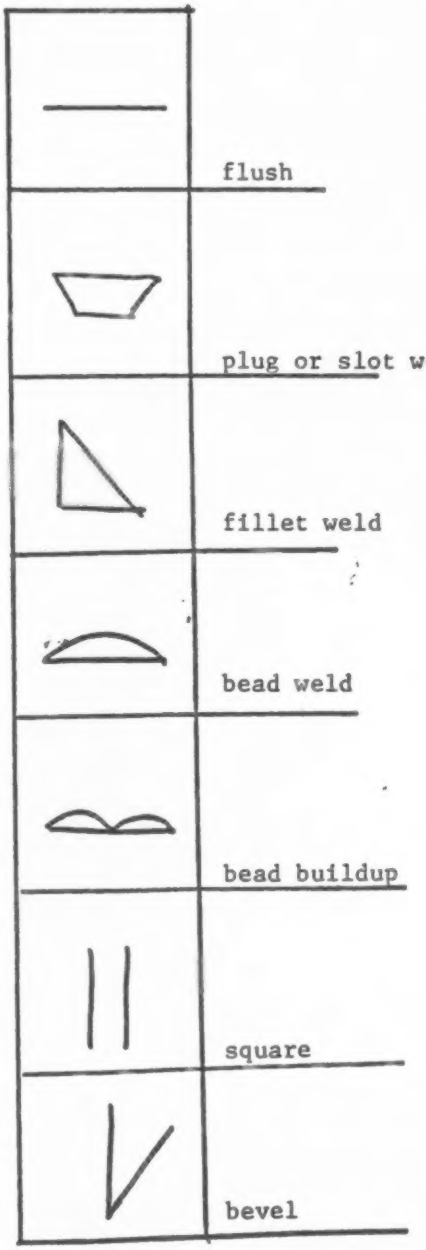
Remember: Basic symbols appear on the reference line and supplementary symbols are added to the basic symbols.

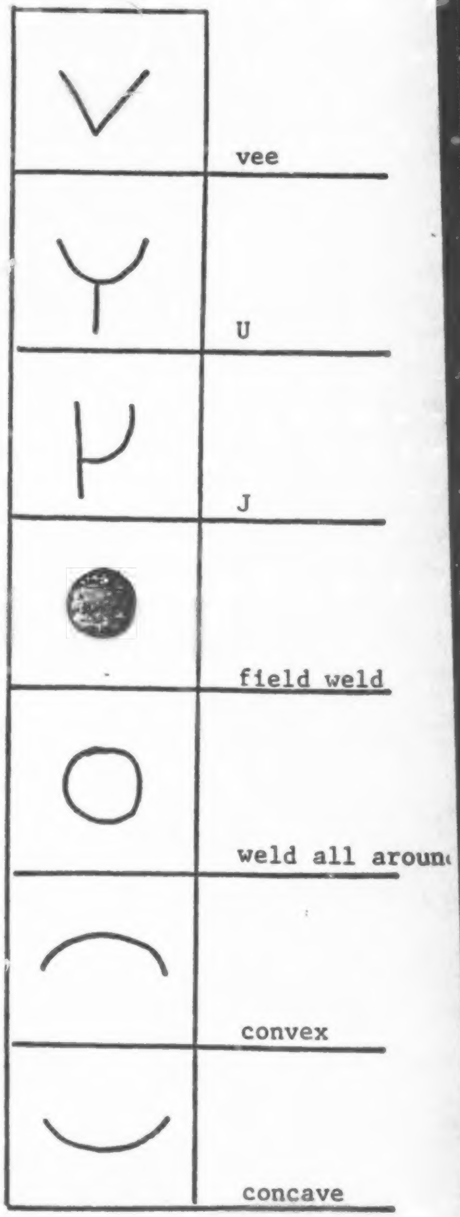

reference line
supplementary symbol
OAW
arrow
1/4
welding process on specification (oxyacetylene welding)
weld size
basic weld symbol

LESSON 21-B

INSTRUCTOR'S SHEET

Have the students write the names of the following basic and supplementary welding symbols.

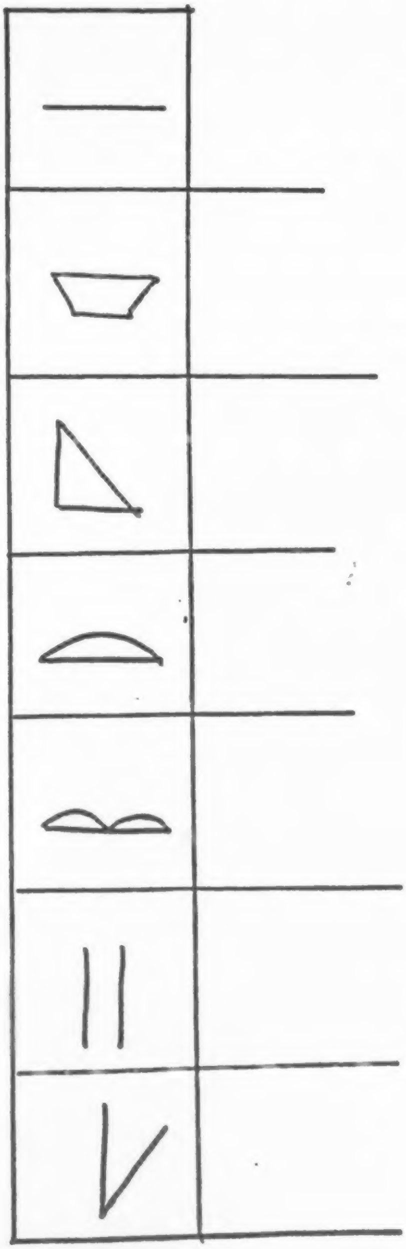

flush
plug or slot weld
fillet weld
bead weld
bead buildup
square
bevel

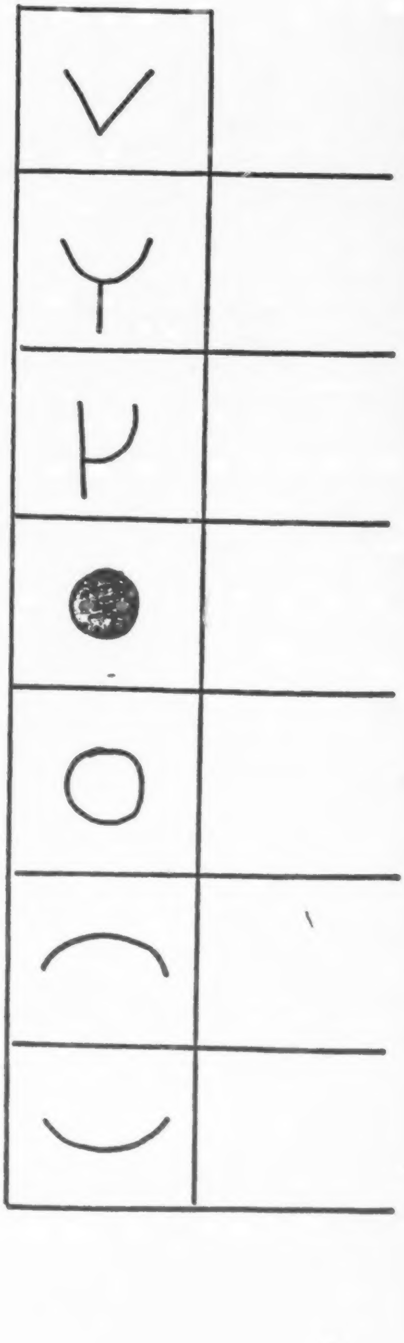

vee
U
J
field weld
weld all aroun
convex
concave

LESSON 21-B

Name:________________________

Directions: Write the names of the following welding symbols.





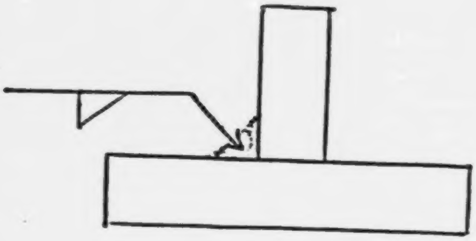
LESSON 21-C

INSTRUCTOR'S SHEET

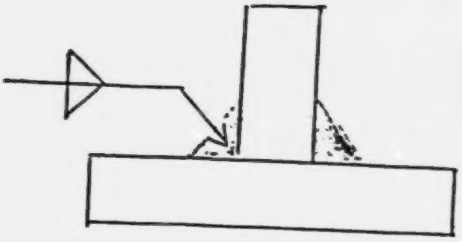
WELDING SYMBOLS

Have the students follow the welding symbols and shade in the desired weld area.

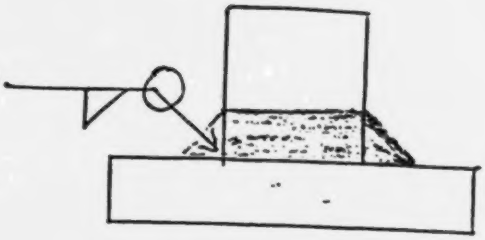
1.



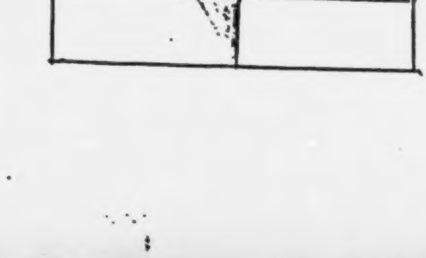
2.



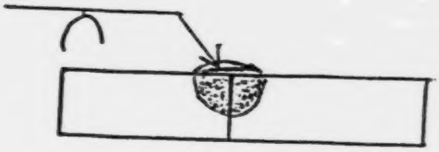
3.



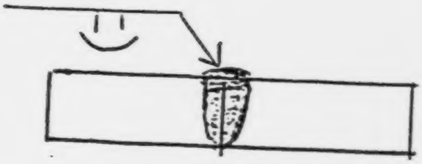
4.



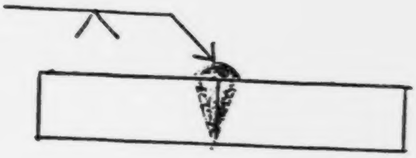
5.



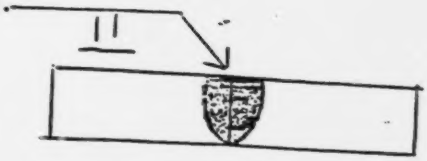
6.



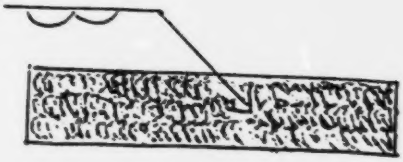
7.



8.



9.



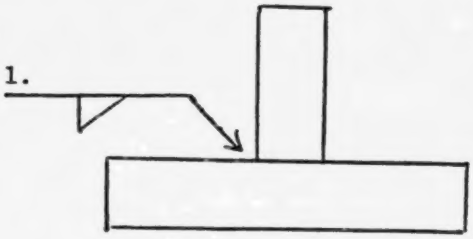
LESSON 21-C

Name:________________________

WELDING SYMBOLS

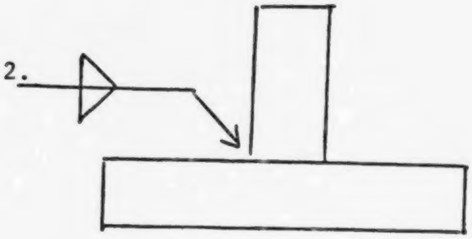
Directions: Following the welding symbols shade in the weld area.

1.



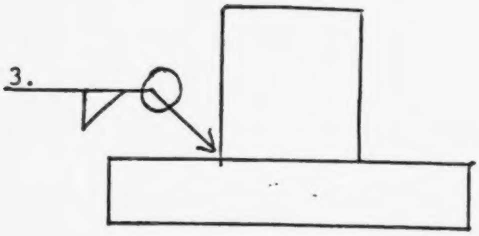
FILLET WELDING

2.



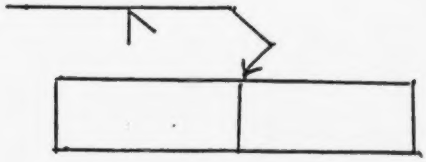
BOTH SIDES FILLET WELDING

3.



FILLET WELD ALL AROUND

4.

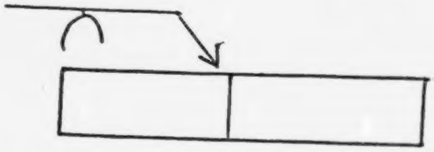


BEVEL GROOVE WELDING

LESSON 21-C (cont'd)

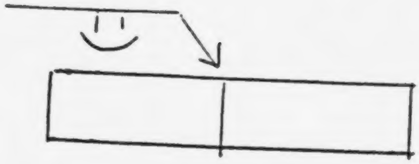
Name:____________________________

5.



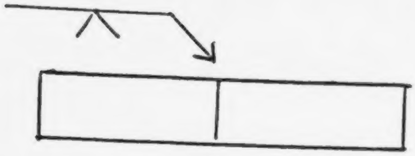
U GROOVE WELDING

6.



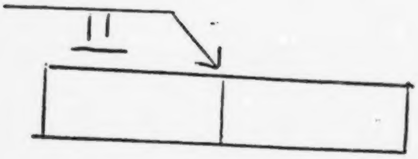
CONVEX SQUARE GROOVE

7.



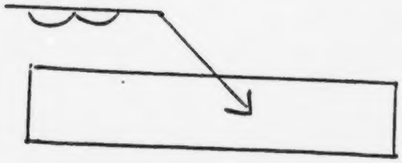
V GROOVE WELDING

8.



SQUARE GROOVE WELDING

9.

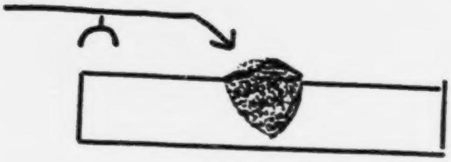


ENTIRE SURFACE BUILT UP BY WELDING

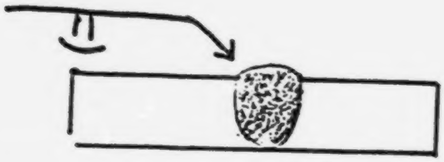
LESSON 21-D

INSTRUCTOR'S SHEET

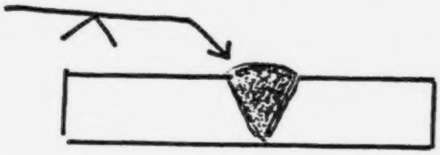
Have the students draw the welding symbol over each picture and write its name in the blank.



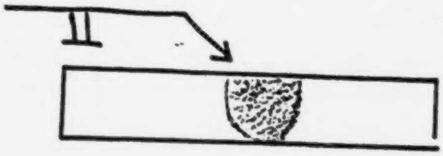
U GROOVE WELDING SYMBOL



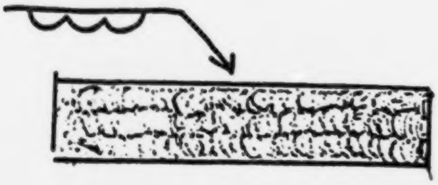
CONVEX SQUARE GROOVE WELDING SYMBOL



V GROOVE WELDING SYMBOL

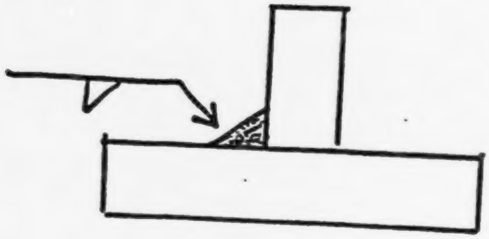


SQUARE GROOVE WELDING SYMBOL

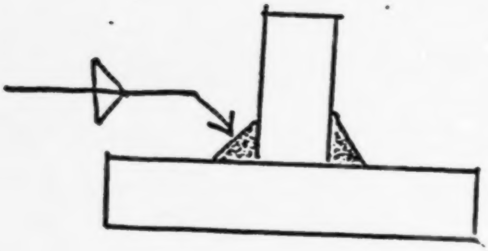


BEAD BUILT UP OF ENTIRE SURFACE
WELDING SYMBOL

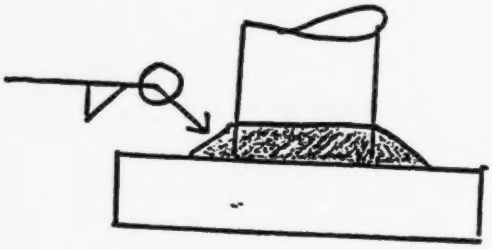
INSTRUCTOR'S SHEET



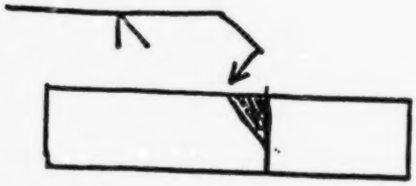
FILLET WELD WELDING SYMBOL



BOTH SIDES FILLET WELD WELDING SYMBOL



FILLET WELD ALL AROUND WELDING SYMBOL

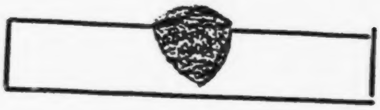


BEVEL GROOVE WELDING SYMBOL

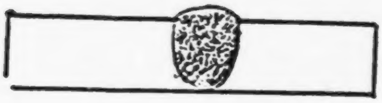
LESSON 21-D

Name:____________________________

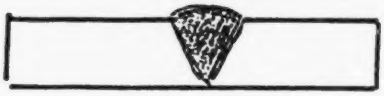
Directions: Draw the welding symbol over each picture and write its name in the blank.



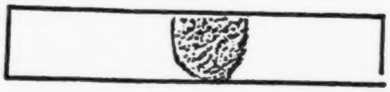
1. ______________________________



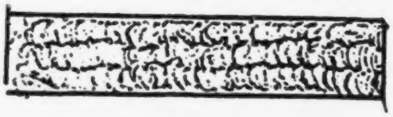
2. ______________________________



3. ______________________________



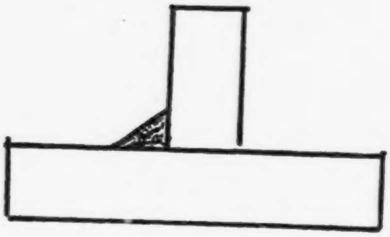
4. ______________________________



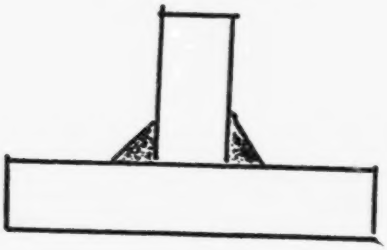
5. ______________________________

LESSON 21-D (Cont'd)

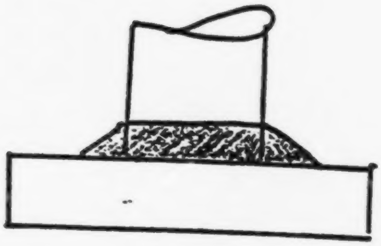
Name:________________________



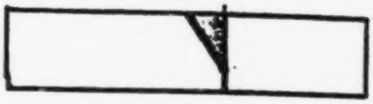
6. ______________________________



7. ______________________________



8. ______________________________

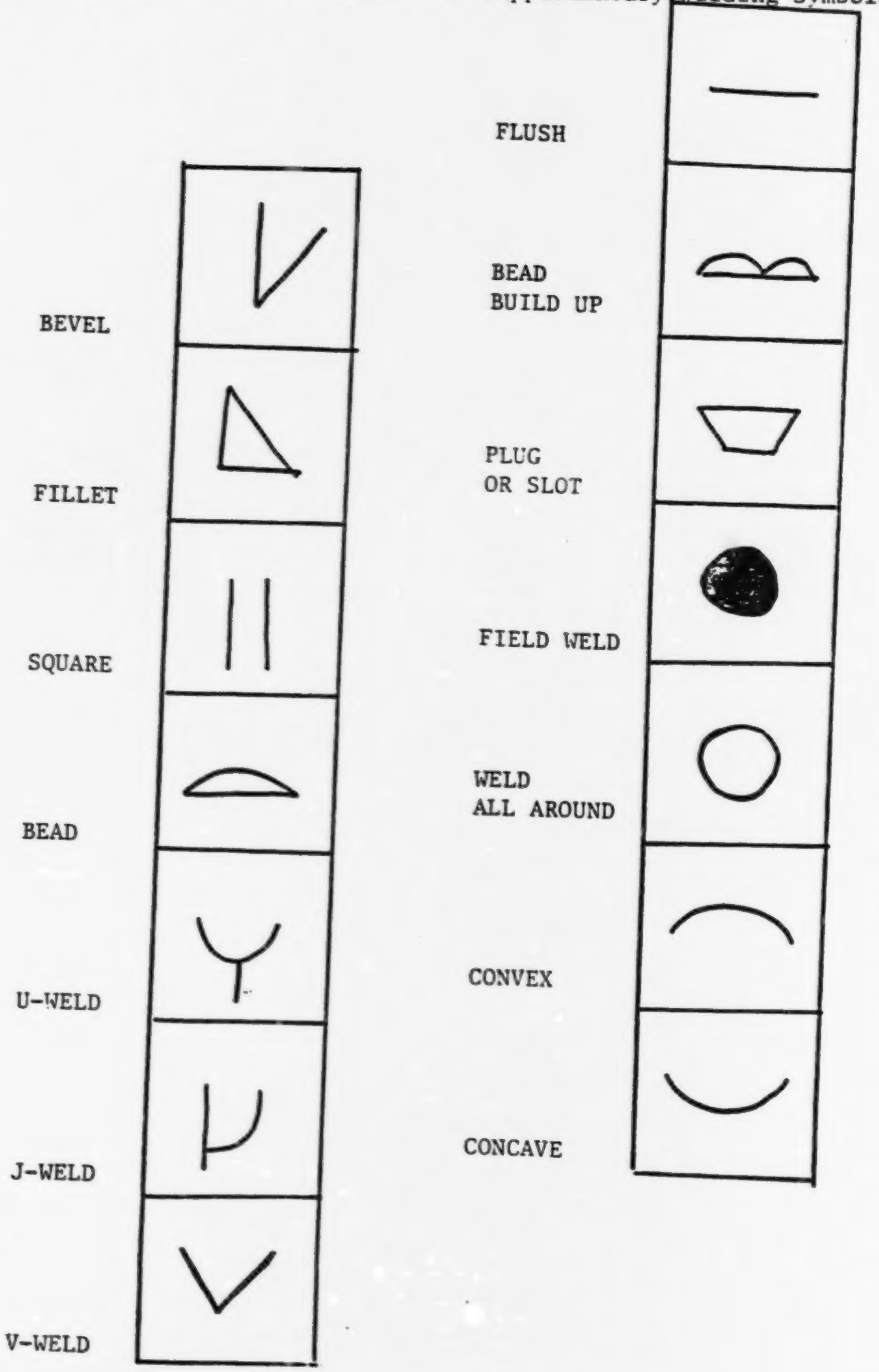


9. ______________________________

LESSON 21-E

INSTRUCTOR'S SHEET

Have the students draw the basic and supplementary welding symbols in the squares.


BEVEL
FILLET
SQUARE
BEAD
U-WELD
J-WELD
V-WELD
FLUSH
BEAD BUILD UP
PLUG OR SLOT
FIELD WELD
WELD ALL AROUND
CONVEX
CONCAVE

LESSON 21-E

Name:____________________________

Directions: Draw the basic and supplementary welding symbols in the squares

BEVEL	
FILLET WELD	
SQUARE	
BEAD WELD	
U	
J	
V	

FLUSH	
BEAD BUILDUP	
PLUG OR SLOT WELD	
FIELD WELD	
WELD ALL AROUND	
CONVEX	
CONCAVE	

LESSON 22

JOB APPLICATIONS

INTRODUCTION: After finishing training, students need to obtain a job. Completing a job application can be a large hurdle to clear in pursuit of a job.

PURPOSE: The purpose of this lesson is to introduce students to the vocabulary and skills necessary to fill applications and compete for jobs.

OBJECTIVES: The students will understand the terms and directions commonly used on application forms so as to fill them correctly.

VOCABULARY: Terms and words associated with application forms.

MATERIALS:

1. Handouts
2. Application forms from local businesses.

PROCEDURE:

1. Discuss the importance of filling out application forms correctly. Show same forms from local businesses to the students.
2. Handout 22-A. Discuss the meanings of the words on the list and then have them write the appropriate meanings. Review the definitions by asking personal questions from the students. Example: "What is your marital status?"
3. Distribute Handout 22-B and have the students match the terms with their definitions. Discuss the answers in class.
4. Discuss the interview situation with the students and stress on the importance of listening carefully to the questions asked in order to give appropriate answers. Distribute Handout 22-C and call upon the students to choose the correct answers individually. They should also fill in the blanks with the correct answers.
5. Handout 22-D. Discuss the importance of neatness and legibility in filling out application forms. Have the students practice their printing of the letters of the alphabet and their own names and addresses.
6. Handout 22-E. The students should practice filling out application form in print.

INSTRUCTOR'S SHEET

LESSON 22-A

Have the students discuss and write the meanings of these words. These terms are often found on job applications.

1. application a form used in making a request.
2. print to write in capital letters.
3. address a place where a person can be communicated with.
4. birthdate date on which a person is born.
5. birthplace a name of the city where a person is born
6. position
   job desired name of the job one is applying for.
7. in emergency notify
   in case of accident notify - name of person to be contacted in case of emergency
8. military relating to armed forces.
9. veteran a person who has served in the U.S. armed forces.
10. U.S. citizen a citizen of the United States.
11. alien a person who is not a U.S. citizen but is permitted to live in the U.S.
12. work experience having performed a job earlier.
13. employer person who hires and provides the job.
14. supervisor person in charge of directing activities.
15. education schooling
16. elementary
    primary first six grades of school.
17. secondary
    high school the last four grades of school.

LESSON 22-A (Cont'd)

18. college
university higher studies after grade twelve

19. trade school
vocational school a school for giving training or skill for a job

20. diploma
certificate a document (paper) verifying a statement

21. health being free from physical or mental pain

22. disability being unable to have an occupation due to physical or mental pain

23. physical condition condition of the body

24. marital status relating to the position regarding marriage

25. single unmarried state or position

26. married having a spouse

27. divorced a marriage ended legally

28. widow(er) a man/woman who has lost a wife/husband by death

29. spouse one's marriage partner

30. prison a building in which persons are kept while on trial

31. crime an act against the law

32. felony a crime to be punished by death or prison for more than one year

33. wage a payment for services on hourly or daily basis

34. salary fixed payment for services on a regular basis

35. full-time forty hours of work per week

36. part-time less than forty hours of work per week

37. permanent long lasting in nature

38. temporary serving for a limited time

LESSON 22-A

Name:________________________

Directions: Discuss and write the meanings of these words. These terms are often found on job applications.

1. application____
2. print____
3. address____
4. birthdate____
5. birthplace____
6. position
   job desired______________________________________
7. in emergency notify
   in case of accident_________________________________
8. military____
9. veteran____
10. U.S. citizen______________________________________
11. alien____
12. work experience____________________________________
13. employer____
14. supervisor____
15. education____
16. elementary
    primary____
17. secondary
    high school______________________________________

Name:____________________

18. college
    university____________________

19. trade school
    vocational school____________________

20. diploma
    certificate____________________

21. health____________________

22. disability____________________

23. physical condition____________________

24. marital status____________________

25. single____________________

26. married____________________

27. divorced____________________

28. widow(er) ____________________

29. spouse____________________

30. prison____________________

31. crime____________________

32. felony____________________

33. wage____________________

34. salary____________________

35. full-time____________________

36. part-time____________________

37. permanent____________________

38. temporary____________________

INSTRUCTOR'S SHEET

LESSON 22-B

Have the students match the words with their synonyms or definitions.

__g__ 1. address
__c__ 2. in emergency notify
__j__ 3. spouse
__m__ 4. trade school
__k__ 5. veteran
__a__ 6. alien
__p__ 7. supervisor
__o__ 8. elementary
__f__ 9. prison
__b__ 10. full-time
__i__ 11. temporary
__n__ 12. position
__d__ 13. employer
__e__ 14. wage
__l__ 15. workman's compensation
__h__ 16. disability

a. foreigner
b. 40 hours a week
c. in case of accident inform
d. person or company that pays your salary
e. pay
f. jail
g. place where you live
h. handicap
i. for a short time
j. wife or husband
k. former soldier
l. money you get if injured on job
m. vocational school
n. job
o. primary
p. boss

LESSON 22-B

Name:______________________________

Directions: Match the words with their synonyms or definitions.

______ 1. address

______ 2. in emergency notify

______ 3. spouse

______ 4. trade school

______ 5. veteran

______ 6. alien

______ 7. supervisor

______ 8. elementary

______ 9. prison

______10. full-time

______11. temporary

______12. position

______13. employer

______14. wage

______15. workman's compensation

______16. disability

a. foreigner

b. 40 hours a week

c. in case of an accident

d. person or company that pays your salary

e. pay

f. jail

g. place where you live

h. handicap

i. for a short time

j. wife or husband

k. former soldier

l. money you get if injured on the job

m. vocational school

n. job

o. primary

p. boss

LESSON 22-C

INSTRUCTOR'S SHEET

Have the students choose the word or words which best finish the question.

1. "How is your ____health____?"
"Good."

   a. divorce
   b. birthdate
   c. health
   d. military

2. "What's your ____marital status____?"
"I'm single."

   a. marital status
   b. spouse
   c. widow
   d. certificate

3. "What ____position____ are you applying for?"
"Auto mechanic."

   a. supervisor
   b. physical condition
   c. work experience
   d. position

4. "Were you in the ____military____?"
"Yes, I was in the army."

   a. veteran
   b. U.S. citizen
   c. prison
   d. military

5. "Have you ever been convicted of a ____crime____?"
"No."

   a. crime
   b. prison
   c. alien
   d. workman's compensation

6. "Do you have any ____disability____ that might limit your ability to do this job?"
"I'm hard of hearing."

   a. disability
   b. certificate
   c. education
   d. work experience

INSTRUCTOR'S SHEET

7. "What's your ___birthplace___?"
"Saigon."

a. birthdate
b. alien
c. birthplace
d. address

8. "Who was your immediate ___supervisor___ at Best Company?"
"Mr. John Brown."

a. workman's compensation
b. work experience
c. supervisor
d. widow

9. "Do you have ___work experience___ in the United States?"
"No, but I worked as a welder in my country."

a. trade school
b. work experience
c. wage
d. veteran

10. "___In case of accident___, who should we notify?"
"My wife."

a. in case of an accident
b. physical condition
c. U.S. citizen
d. felony

Name:____________________

LESSON 22-C

Directions: Choose the word or words which best finish the question.

1. "How is your________________________?"
   "Good"

   a. divorce
   b. birthdate
   c. health
   d. military

2. "What's your ________________________?"
   "I'm single."

   a. marital status
   b. spouse
   c. widow
   d. certificate

3. "What________________________are you applying for?"
   "Auto mechanic."

   a. supervisor
   b. physical condition
   c. work experience
   c. position

4. "Were you in the ____________________?"
   "Yes, I was in the army."

   a. veteran
   b. U.S. citizen
   c. prison
   d. military

5. "Have you ever been convicted of a________________________?"
   "No"

   a. crime
   b. prison
   c. alien
   d. workman's compensation

6. "Do you have any________________________that might limit your ability to do this job?"
   "I'm hard of hearing."

   a. disability
   b. certificate
   c. education
   d. work experience

LESSON 22-C (Cont'd)

Name:____________________________

7. "What's your ____________________________?"
"Saigon."

a. birthdate
b. alien
c. birthplace
d. address

8. "Who was your immediate ____________________________ at Best Company?"
"Mr. John Brown."

a. workman's compensation
b. work experience
c. supervisor
d. widow

9. "Do you have ____________________________ in the United States?"
"No, but I worked as a welder in my country."

a. trade school
b. work experience
c. wage
d. veteran

10. "____________________________, who should we notify?"
"My wife."

a. in case of an accident
b. physical condition
c. U.S. citizen
d. felony

LESSON 22-D

Name:________________________

Directions: Most job applications want you to print. Practice your printing by copying the letters on the lines below the examples. Then, print your name and address.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

____

a b c d e f g h i j k l m n o p q r s t u v w x y z

____

1 2 3 4 5 6 7 8 9 0

NAME:____
first middle last

ADDRESS:____
no. street

____
city state zip

Name: ____________________

LESSON 22-E

Directions: Fill in the application form. Please print.

PERSONAL

Name (last)	(first)	(middle)		Date
Address (no.)	(street)	(city)	(state)	Social Security No.
Phone	Birthdate	If you are not a U.S. citizen, type visa?		
Position Desired		☐ Part-time ☐ Full-time		
Salary Expected		Date Available		

EDUCATION

Circle highest grade completed

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Name of School	Location
High School	
Trade School	
College	

MILITARY

Are you a veteran? ☐ Yes ☐ No

Have you ever been convicted of a felony? ☐ Yes ☐ No

EMPLOYMENT HISTORY

List all employment starting with the most recent.

From To	Name and Address	Job Title	Wage	Reason for leaving

REFERENCES

List three references not related to you.

Name	Address	Phone

Date____________________ Signature________________________

LESSON 23

IN THE INTERVIEW

INTRODUCTION:

A job interview is a talk between the job applicant and the person in charge of hiring. It is held so that the applicants behavior, background and personality can be assessed first hand.

PURPOSE:

The purpose of this unit is to introduce the students to the cultural expectations for an interview and practice the language expected in an interview.

OBJECTIVES:

The objectives of this unit are:

1. to be able to handle situations that could occur during an interview
2. to comprehend fully words and terms which may come up in an interview
3. to become familiar with questions an interviewer may ask and disucss the best responses

VOCABULARY:

Terms used in an interview.

MATERIALS:

1. Handouts
2. Tape recorder

PROCEDURE:

1. Discuss the sequence of events leading to a job. i.e. filling out an application, receiving a telephone call to set up an interview, going to an interview and receiving an acceptance or rejection.
2. Handout 23-A. Students should select what they think is the best answer. Review and discuss the answers in class. Point out cultural differences and their implications.
3. Using handout 23-B orally review cultural norms for interviews. Students should complete the open-end sentences on the handout.
4. Discuss the terms on handout 23-C, which could appear in an interview. Discuss them and have the students write the definitions.
5. Handout 23-D. The students should fill in the blanks with the appropriate words and match the words with the correct definitions.
6. Distribute handout 23-F. Act the role of an interviewer and have the students mark the correct answers to the quesitons you ask them from 23-E. (instructors sheet)

INSTRUCTOR'S SHEET

LESSON 23-A

Choose the best answer.

1. You walk through the interviewer's door and c
   a. say nothing and wait for him to see you.
   b. say "Hi," and look at the floor.
   c. say "Good Morning," and look at him.

2. You should arrive b
   a. on time.
   b. 5 minutes early.
   c. 5 minutes late.

3. You should c
   a. take a friend with you.
   b. take a family member with you.
   c. go alone.

4. You should a
   a. smile when you enter, leave, and when the interviewer says something good about you
   b. smile all the time to show you are a good worker.
   c. smile only if the interviewer smiles.

5. If the interviewer's name is Jim Jones c
   a. call him Jim.
   b. call him Mr. Jim.
   c. call him Mr. Jones.

6. If you and the interviewer are standing up, then c
   a. you should be about one foot apart.
   b. you should be about four or five feet apart.
   c. you should be about two and one half feet apart.

7. If you do not understand a question, a
   a. you should say "I don't understand."
   b. you should try to guess the correct answer.
   c. you should say "What?"

8. If the interviewer has told you the salary for the position, but you did not hear him, c
   a. you should say nothing.
   b. you should shake your head.
   c. you should say, "I'm sorry. I didn't hear what you said."

LESSON 23-A

Name:________________________

Directions: Choose the best answer.

1. You walk through the interviewer's door and,
   a. say nothing and wait for him to see you.
   b. say "Hi," and look at the floor.
   c. say "Good morning," and look at him.

2. You should arrive
   a. on time.
   b. 5 minutes early.
   c. 5 minutes late.

3. You should
   a. take a friend with you.
   b. take a family member with you.
   c. go alone.

4. You should
   a. smile when you enter, leave and when the interviewer says something good about you.
   b. smile all the time to show you are a good worker,
   c. smile only if the interviewer smiles,

5. If the interviewer's name is Jim Jones
   a. call him Jim.
   b. call him Mr. Jim.
   c. call him Mr. Jones.

6. If you and the interviewer are standing up, then,
   a. you should be about one foot apart.
   b. you should be about four or five feet apart.
   c. you should be about two and one half feet apart.

7. If you do not understand a question,
   a. you should say "I don't understand."
   b. you should try to guess the correct answer.
   c. you should say "What?"

8. If the interviewer has told you the salary for the position, but you did not hear him,
   a. you should say nothing.
   b. you should shake your head.
   c. you should say, "I'm sorry. I didn't hear what you said."

LESSON 23-B

INSTRUCTOR'S SHEET

Directions: Finish these sentences. Discuss your answers in class.

1. When you come to the door of the interviewer, you should say "Good morning," and look at him.

2. When the interviewer first sees you, you should smile.

3. If the interviewer's name is John Black, call him Mr. Black.

4. Most of the time you should look look at the interviewer.

5. If the interviewer asks about your work experience include the experience in your own country.

6. You should talk about your work experience.

7. If the interviewer asks you if you have any questions, you should ask some job related questions.

8. If you don't understand a question, you should say "I don't understand.

9. You should smile when you enter, leave and when the interviewer says something nice about you.

10. You should arrive a little early.

Name:________________

LESSON 23-B

Directions: Finish these sentences. Discuss your answers in class.

1. When you come to the door of the interviewer, you should ______________________________.

2. When the interviewer first sees you, you should ____________________.

3. If the interviewer's name is John Black, call him ____________________.

4. Most of the time you should look ________________________.

5. If the interviewer asks about your work experience ____________________ ______________________________.

6. You should talk ________________________.

7. If the interviewer asks you if you have any questions, you should ______________________________.

8. If you don't understand a question, you should ____________________ ____________________.

9. You should smile ______________________________ ______________________________.

10. You should arrive ____________________.

LESSON 23-C

INSTRUCTOR'S SHEET

Discuss these words. Write the definitions on the lines.

1. fringe benefits an employment benefit given by the employer involving a money cost.
2. hours time used for working.
3. shifts a scheduled period of work or duty.
    - day period of work generally from 7 a.m. - 3 p.m.
    - swing period of work from 3 p.m. - 7 p.m.
    - graveyard period of work from 11 p.m. - 7 a.m.
4. dress requirement clothes a worker must wear on the job.
5. tool requirement equipment and tools a worker must possess.
6. holidays days off from work to celebrate an event.
    - paid holidays days off from work with pay.
7. vacations days off from work for relaxation.
    - paid vacations days of relaxation with pay.
8. Personnel office a division of an organization concerned with matters of the employees.
9. breaks stopping work for short periods for relaxation.
10. clock in noting down time when arriving at work.
    - punch in noting down time of arrival at work.
11. probationary period a period of testing to ascertain fitness for a job.
12. interview a formal consultation to evaluate qualifications.
    - interviewer the person who makes the interview.
13. appointment an arrangement for a meeting.

LESSON 23-C

Name:____________________

Directions: Discuss these words. Write the definitions on the lines.

1. fringe benefits ____________________

____

2. hours ____________________

3. shifts ____________________

day____________________

swing ____________________

graveyard ____________________

4. dress requirement ____________________

5. tool requirement ____________________

6. holidays ____________________

paid holidays ____________________

7. vacations ____________________

paid vacations ____________________

8. Personnel office ____________________

9. breaks ____________________

10. clock in ____________________

punch in ____________________

11. probationary period ____________________

12. interview ____________________

interviewer ____________________

13. appointment ____________________

INSTRUCTOR'S SHEET

LESSON 23-D

Write each of these terms in a blank. Each term will be used one time.

shift
tool requiremnt
paid holidays
dress requirement
fringe benefits
hours
probationary period
salary

1. "What ____shift____ do I work."
   "You will work graveyard."
2. "What is my ____salary____?"
   "You will make $5.00 an hour."
3. "Is there a ____tool requirement____?"
   "Yes, we expect you to have your own basic tool set."
4. "What kind of ____fringe benefits____ do you offer?"
   "We offer health insurance and dental insurance."
5. "What ____hours____ do I work?"
   "From 11:00 p.m. to 7:00 a.m., Monday through Friday."
6. "Is there a ____probationary period____?"
   "Yes, it is 3 months, and then we will evaluate you."
7. "Is there a ____dress requirement____?"
   "Yes, we like all of our employees to wear our store's uniform."
8. "How many ____paid holidays____ are there?"
   "You don't have to work July 4, Easter, Christmas, Thanksgiving, and New Years. But, you also don't get paid for these days."
9. Match these words with the correct definitions.

__e__ 1. wage
__b__ 2. breaks
__g__ 3. time clock
__c__ 4. Personnel office
__d__ 5. work schedule
__a__ 6. day shift
__f__ 7. swing shift

a. 7:00 a.m. - 3:00 p.m.
b. time to smoke, eat and relax
c. where you go for an application form
d. the time when people work
e. pay
f. 3:00 p.m. - 11:00 p.m.
g. where you punch in and out

LESSON 23-D

Name:____________________

Directions: Write each of these terms in a blank. Each term will be used one time.

shift
tool requirement
paid holidays
dress requirement
fringe benefits
hours
probationary period
salary

1. "What____________________ do I work?"
"You will work graveyard.

2. "What is my ____________________?"
"You will make $5.00 an hour."

3. "Is there a ____________________?"
"Yes, we expect you to have your own basic tool set."

4. "What kind of ____________________ do you offer?"
"We offer health insurance and dental insurance."

5. "What ____________________ would I work?"
"From 11:00 p.m. to 7:00 a.m., Monday through Friday."

6. "Is there a ____________________?"
"Yes, it is 3 months, and then we will evaluate you."

7. "Is there a ____________________?"
"Yes, we like all of our employees to wear our store's uniform."

8. "How many ____________________ are there?"
"You don't have to work July 4, Easter, Christmas, Thanksgiving, and New Years. But, you also don't get paid for these days."

9. Match these words with the correct definitions.

______1. wage
______2. breaks
______3. time clock
______4. Personnel office
______5. work schedule
______6. day shift
______7. swing shift

a. 7:00 a.m. - 3:00 p.m.
b. time to smoke, eat and relax
c. where you go for an application form
d. the time when people work
e. pay
f. 3:00 p.m. - 11:00 p.m.
g. where you punch in and out

INSTRUCTOR'S SHEET

LESSON 23-E

Act as the interviewer and ask the following questions. Have the students check off the appropriate response on Handout 23-F.

1. May I help you? a
2. What's your name? a
3. Please come in and take a seat. a
4. You filled out an application, didn't you? a
5. Are you an American citizen? b
6. What nationality are you? b
7. Where do you live now? a
8. Do you have a high school diploma? a
9. Do you have a certificate in welding? a
10. What kind of work experience do you have? b
11. Do you have your own transportation? b
12. Do you have a driver's license? b
13. Are you punctual? a
14. What's your driving record like? b
15. Do you have car insurance? b
16. What kinds of welding processes can you do? a
17. What kind of power tools and equipment can you use? a
18. What kind of positions can you weld in? b
19. Do you have your own tools? a
20. This is a forty-hour position, Monday through Friday from eight to five. The person would start at $4.00 an hour. Any questions? b
21. I want to interview some other people. I will make my decision next week. I will call you if you got the job. Any questions? a
22. Thank you for coming in. a

LESSON 23-F

Name:________________________

Directions: You fill out an application. The owners called you for an interview. Listen to the interviewer. Circle the best response to his question or sentence.

1. a. I have an appointment with Mr. Black at 10:00.
   b. I need a job.

2. a. My name is Mr. Sam.
   b. My name is Sam Chu.

3. a. Thank you. (you enter and sit down)
   b. No thank you. I'll stand up.

4. a. Yes, I did
   b. I did it.

5. a. No, I'm a refugee.
   b. No, but I have permanent resident status.

6. a. I'm Vietnam.
   b. I'm Vietnamese.

7. a. In Los Angeles.
   b. At 1501 Elm St. Apartment C

8. a. Yes, from my country.
   b. I studied English for one year.

9. a. Yes, I do. From Pomona Adult School.
   b. I studied welding for one year.

10. a. None.
    b. In my country. I was a soldier. Before that, I worked in a clothing factory.

LESSON 23-F (Cont'd)

11. a. No.
    b. Yes, I have a car.

12. a. No, I don't.
    b. Yes, I do.

13. a. I'm sorry. I don't understand punctual.
    b. Punctual-----what means?

14. a. I don't have any handicap.
    b. I have had no accidents.

15. a. I don't know.
    b. Yes, I do.

16. a. I can do shielded metal arc welding (stick) and gas metal arc welding (MIG) as well as oxyacetylene welding.
    b. I can do all the processes, but my English is not good. Sometimes I do not understand.

17. a. I can use a hand drill, drill press, a stationery grinder, and the power hacksaw.
    b. I think I can use a hand drill and a drill press, but I don't know how to use the stationery grinder.

18. a. I can weld all positions.
    b. I am certificated to weld in horizontal, vertical, overhead and flat positions.

19. a. Yes, I've started buying some tools.
    b. I have none.

20. a. No.
    b. Yes. Are there any benefits?

21. a. No.
    b. Can I call you?

22. a. Thank you and I hope to be hearing from you.
    b. Yes.

INSTRUCTOR'S SHEET

LESSON 23-G

You have an interview with Mr. Brown, the owner of a welding shop at 10:00. Please write correct responses to complete the following interview.

1. Owner: Hello. May I help you?
   You: Yes, I have an appointment with Mr. Brown.
2. Owner: I'm Mr. Brown. Have a seat.
   You: Thank you.
3. Owner: We're looking for a person with some experience in arc welding. What kind of metals have you worked with?
   You: I have worked with both ferrous and non-ferrous metals.
4. Owner: Where did you get your training?
   You: At Pomona Adult School.
5. Owner: How long were you there?
   You: For a year.
6. Owner: How long have you been in the USA?
   You: I've been here for about two years.
7. Owner: Did you finish high school?
   You: Yes, I finished high school in Vietnam.
8. Owner: Do you have any work experience?
   You: Yes, I have worked as a salesman for seven years.
9. Owner: What country do you come from?
   You: I come from Vietnam.
10. Owner: Do you have your own tools?
    You: Yes, I have some and I am buying some more.
11. Owner: What kind of welding equipment can you use?
    You: I can use the constand current and constant potential machines.
12. Owner: Do you have your own car?
    You: Yes. I do.
13. Owner: We want to start the person out at $3.85 an hour. How does that sound to you?
    You: That's OK. What are the hours of work?
    Owner: We come in at 8 and leave at 5, Monday through Friday.

INSTRUCTOR'S SHEET

14. Owner: When would you be available to start?

You: I am available immediately

15. Owner: I'm interviewing all week. I'll make my decision next week. I'll give you a call. Do you have any questions?

You: Do you have any fringe benefits?

Owner: Yes. We offer health insurance.

16. Owner: Thank you for coming in.

You: Thank you. I'll be looking forward to hearing from you.

Name:____________________

LESSON 23-G

Directions: You have an interview with Mr. Brown, the owner of a welding shop at 10:00 today. Please write correct responses to complete the following interview.

1. Owner: Hello. May I help you?

   You:______________________________

2. Owner: I'm Mr. Brown. Have a seat.

   You:______________________________

3. Owner: We're looking for a person with some experience in auto repair to train. What kind of repairs can you do?

   You:______________________________

4. Owner: Where did you get your training?

   You:______________________________

5. Owner: How long were you there?

   You:______________________________

6. Owner: How long have you been in the USA?

   You:______________________________

7. Owner: Did you finish high school?

   You:______________________________

8. Owner: Do you have any work experience?

   You:______________________________

9. Owner: What country do you come from?

   You:______________________________

10. Owner: Do you have your own tools?

    You:______________________________

11. Owner: What kind of welding equipment can you use?

    You:______________________________

12. Owner: Do you have your own car?

    You:______________________________

13. Owner: We want to start the person out at $3.85 an hour. How does that sound to you?

    You:______________________________

Owner: We come in at 8 and leave at 5, Monday through Friday.

LESSON 23-G (Cont'd)

Name:____________________

14. Owner: When would you be available to start?

You:____

15. Owner: I'm interviewing all week. I'll make my decision next week. I'll give you a call. Do you have any questions?

You:____

Owner: We offer health insurance.

16. Owner: Thank you for coming in.

You:____

LESSON 24

ON THE JOB

INTRODUCTION:

Understanding cultural customs of the work world is necessary for success on the job. It also makes the employee more comfortable and relaxed if he knows he is following the rules of the game.

PURPOSE:

The purpose of this lesson is to provide some situations to discuss the American culture as it affects the workplace.

OBJECTIVES:

The objectives of this unit are to enable the students to:

1. identify appropriate behavior in learning the job and working with others.

2. distinguish between good and bad work habits.

3. recognize acceptable ways of dealing with problems at work.

MATERIALS:

1. Handouts.

PROCEDURE:

1. Divide students into groups. Distribute sheet A. Students discuss and choose a solution as a group.

2. As a class, discuss solutions. Talk about cultural assumptions.

3. Role play the situation with students in the class.

4. Distribute sheets B, C, D, and E. Follow the same procedure as with sheet A; i.e. steps 1, 2, and 3.

SUPPLEMENTARY EXERCISE:

1. Change some of the informtion in the situations to change the solutions. For examples, on sheet D, the boss could tell Senh that he has been doing a bad job lately.

Name:____________________

LESSON 24-A

Directions: Read the situation below and discuss it in your group. Choose the solution which Americans would think to be the most appropriate.

Senh Chu's boss is explaining to him how to do an operation. Senh does not understand his boss. What should Senh do?

______ Wait until the boss finishes and go ask another worker to explain it to him again.

______ Tell the boss he does not understand, and ask him to repeat it.

______ Don't tell anyone he did not understand. Try and do the operation.

______ Tell his friend, who also works in the shop, that he did not understand the boss. Ask his friend to tell the boss that he does not understand.

LESSON 24-B

Name:______________________________

Directions: Read the situation below and discuss it in your group. Choose the solution which Americans would think to be the most appropriate.

Senh Chu's wife has just had a baby. But, she is having physical problems and cannot take care of the baby very well. There are no friends or relatives available to help her. She wants Senh to stay home from work and help her. What should Senh do?

______ Don't go to work and call in sick.

______ Go to work and worry about his wife and new baby.

______ Talk to his boss about the problem and ask to take some sick days or time off without pay.

______ Don't go to work and don't call in sick.

LESSON 24-C

Name:__________________________

Directions: Read the situation below and discuss it in your group. Choose the solution which Americans would think to be the most appropriate.

Senh needs to ask his boss a question before he can continue running the machine. However, the boss has been drinking coffee and talking to another worker about last night's football game for the last fifteen minutes. What should he do?

______ Stand about five feet from the boss and worker and wait for about fifteen seconds. Then interrupt the conversation by saying "Excuse me," and ask the boss the question.

______ Stand near the car and wait until the boss finishes the conversation even though that may be a long time.

______ Stand about five feet from the boss and the worker. Stare at them.

______ Guess the answer to his question and continue repairing the car.

Name:____________________

LESSON 24-D

Directions: Read the situation below and discuss it in your group. Choose the solution which Americans would think to be the most appropriate.

The boss has just told Senh Chu that Senh has been doing good work lately. What should Senh do?

______ Look down at the floor and say nothing.

______ Say "Thank you. I feel that I have learned a lot."

______ Say "You should give the credit to Tom and Bob. They teach me everything. They are good teachers. They always help me."

______ Say "No, no. I make many mistakes. I always forget."

LESSON 24-E

Name:________________________

Directions: Read the situation below and discuss it in your group. Choose the solution which Americans would think to be the most appropriate.

Senh Chu has been working in the same shop for two years now. He has never gotten a raise. He is very happy with the job, and he likes his boss and co-workers. His boss gives him many compliments on his work. Senh, however, thinks that he should be making more money. He wants a raise. What should Senh do?

______ Talk to his frined, who also works at the shop. Ask his friend to talk to the boss about giving Senh a raise.

______ Don't ask for a raise. Start to look for another job.

______ Start to complain to the boss and co-workers about the money problems he is having now. Tell them he does not have enough money to pay for all of his bills.

______ Talk to the boss privately. Tell the boss he has been working here for two years now and the boss has told him he has been doing a fine job. Then, ask the boss for a raise.

LESSON 25

PRONUNCIATION

INTRODUCTION:

The differences between the students mother tongue and the language he is trying to learn are usually the reasons for a student's pronunciation problems. These differences in the two languages are caused by those sounds which occur in both the languages but are used in different ways, and those sounds which are used in one language and not in the other.

Students need to hear the sounds before they enunciate them. Their attention needs to be drawn to the fact that English has tones too but they are associated with whole sentences.

Teachers should tackle one pronunciation problem at a time, i.e., pedagogically it is far better to correct the student only in the area he is working on.

PURPOSE:

To help the Indochinese student acquire pronunciation which though "foreign" will be immediately understood by native speakers.

OBJECTIVE:

1. To train the student to master the sounds and rhythm patterns of English.
2. To provide specific exercises to help students hear and produce those English sounds which can be problematical for them.

VOCABULARY:

Words reflelcting the sound of /I, E, i, L, R, S, S, C, t, p, b, V, f/

MATERIALS:

1. Handouts

PROCEDURES:

1. The target items are presented in isolation in lessons numbered 25-A to 25-N. Have the students repeat one sound at a time after you then present the sounds in sentences.
2. The second step is to have the students practice the words in contrasts using minimal pairs.
3. The third step is to read the sentences from the instructor's sheet and have the students circle the words and sentences they hear you say.

4. Lastly, read the sentences to the students while they write down what they hear.
5. Correction of the above exercises may be done by having the students take turns in writing their answers on the chalkboard.

LESSON 25-A

Name:____________________

Directions: Repeat the following words and sentences after the teacher.

PRONUNCIATION

I. THE SOUNDS [i] [I] [ɛ]

A. The Sound [i] eg: bit

sit
dim
list
did
ship
pin
hit
win
if

a) Is this the way to sit?

b) It is a good fit.

B. The Sound [I] eg: beat

she
be
he
need
read
been
feel
leave
feet

a) He needs some deep sleep

b) She feels the heat.

C. The Souns [ɛ] eg: bet

bed
left
red
when
pen
met
tent
felt
went

a) The men went to bed at ten.

b) I met them at the red tent.

II. CONTRASTS [i] [I] [ɛ]

A.
bid - bed
lid - led
if - F

big - beg
him - hem
fin - den

litter - letter
bitter - better
miss - mess

B.
read - rid
deed - did
ease - is

heel - hill
eel - ill
peel - pill

sheep - ship
seat - sit
feet - fit

LESSON 25-B

III. EXERCISES

Have the students circle the word they hear.

1.	sheep	[✓ ship]	6.	tin	[✓ ten]
2.	rid	[✓ red]	7.	feet	[✓ fit]
3.	[✓ it]	eat	8.	[✓ seat]	sit
4.	leave	[✓ live]	9.	bit	[✓ bet]
5.	[✓ lid]	led	10.	[✓ hid]	head

Have the students circle the sentence they hear.

1. a. That's a ship over there.
   b. [✓ That's a sheep over there.]

2. a. Do you like the fit?
   b. [✓ Do you like the feet?]

3. a. I lift my sister.
   b. [✓ I left my sister.]

4. a. Where's the pin?
   b. [✓ Where's the pen?]

Read the following sentences and have the students write them.

1. Do they fit his feet?

2. Please sit at this seat.

3. If he left then, it was six.

LESSON 25-B

Name:____________________

III. EXERCISES

Directions: Circle the word you hear.

1.	sheep	ship	6.	tin	ten
2.	rid	red	7.	feet	fit
3.	it	eat	8.	seat	sit
4.	leave	live	9.	bit	bet
5.	lid	led	10.	hid	head

Directions: Circle the sentence you hear.

1. a. That's a ship over there.
   b. That's a sheep over there.

2. a. Do you like the fit?
   b. Do you like the feet?

3. a. I lift my sister.
   b. I left my sister.

4. a. Where's the pin?
   b. Where's the pen?

Directions: Write the sentences you hear.

1.

2.

3.

Name: ____________________

LESSON 25-C

Directions: Practice the pronunciation of the following words.

PRONUNCIATION

I. THE SOUNDS [L] [r]

A. The Sound [L] eg: look

lace
link
load
late
love

climb
cloud
belly
glow
flat

file
role
bill
mile
wall

B. The Sound [r] eg: road

race
rate
red
rip
ran

free
pry
berry
grow
cram

war
beer
store
four
fire

II. CONTRASTS [L] [r]

lace - race
lack - rack
late - rate
loot - root
liver - river

climb - crime
flee - free
cloud - crowd
elect - erect
glow - grow

file - fire
wall - war
bill - beer
mile - mire
stole - store

fl -	fr -	gl -	gr -	pl -	pr -
flee	free	glass	green	please	pray
flaw	fresh	glad	grass	plan	press
fly	fry	glide	gray	plant	price
flat	freeze	gloom	ground	play	program

LESSON 25-D

INSTRUCTOR'S SHEET

III. EXERCISES

Have the students circle the word they hear.

1.	lace	race	6.	elect	erect
2.	climb	crime	7.	late	rate
3.	flee	free	8.	river	liver
4.	grass	glass	9.	lack	rack
5.	pray	play	10.	root	loot

Have the students circle the sentence they hear.

1. a) Which road? b) Which load?
2. a) This is green grass. b) This is green glass.
3. a) He will correct it. b) He will collect it.
4. a) I pray every Sunday. b) I play every Sunday.

Read the following sentences and have the students write them.

1. I am very glad to meet you.
2. Please help me.
3. She broke a glass.
4. What's the price of the ground beef?
5. The correct road is to the left.

Name:________________________

LESSON 25-D

III. EXERCISES

Directions: Circle the word you hear.

1. lace race
2. climb crime
3. flee free
4. grass glass
5. pray play
6. elect erect
7. late rate
8. river liver
9. lack rack
10. root loot

Directions: Circle the sentences you hear.

1. a) Which road? b) Which load?
2. a) This is green grass. b) This is green glass.
3. a) He will correct it. b) He will collect it.
4. a) I pray every Sunday b) I play every Sunday.

Directions: Write the sentences you hear.

1.

2.

3.

4.

5.

LESSON 25-E

Name:________________________

Directions: Repeat the following words after the teacher.

PRONUNCIATION

I. THE SOUNDS [θ] [t] [š] [s]

The Sound θ eg: think

thank
thin
three

tenth
death
bath

tooth
path
thing

The Sound [t] eg: tin

tick
tank
true

pity
tent
wit

mat
boot
dirt

The Sound [š] eg: shy

shy
shin
shore

bash
mash
harsh

rash
shank
shred

The Sound [s] eg: sit

sank
saw
sick

mouse
house
face

pass
some
kiss

CONTRASTS [θ] [t] [š] [s]

thank - sank
thaw - saw
thick - sick

thumb - some
truth - truce
path - pass

faith - face
thin - sin
think - sink

thank - shank
thief - sheaf
thrill - shrill

thin - shin
math - mash
with - wish

thigh - shy
thread - shred
bath - bash

LESSON 25-F

INSTRUCTOR'S SHEET

III. EXERCISES

Have the students circle the word they hear.

1. thank shank
2. shank sank
3. sick thick
4. thrill shrill
5. math mash
6. shin sin
7. shy thigh
8. saw shore
9. truth truce
10. mat math

Have the students circle the sentence they hear.

1. a) They went over the path .
   b) They went over the pass.

2. a) She loves the math.
   b) She loves the mat.

3. a) The men will sink it.
   b) The men will think it.

4. a) I never thought that.
   b) I never taught that.

Read the following sentences and have the students write them.

1. I don't think it will sink.
2. The sick child's face was very thin.
3. Thank you for telling the truth.

Name:____________________

LESSON 25-F

III. EXERCISES

Directions: Circle the word you hear.

1.	thank	shank	6.	shin	sin
2.	shank	sank	7.	shy	thigh
3.	sick	thick	8.	saw	shore
4.	thrill	shrill	9.	truth	truce
5.	math	mash	10.	mat	math

Directions: Circle the sentence you hear.

1. a) They went over the path.
2. b) They went over the pass.

2. a) She loves the math.
b) She love the mat.

3. a) The men will sink it.
b) The men will think it.

4. a) I never thought that.
b) I never taught that.

Directions: Write the sentences you hear the teacher read.

1.

2.

3.

LESSON 25-G

Name:________________________

Directions: Repeat the following words after the teacher.

PRONUNCIATION

The Sounds [p] [f]

A. The Sound [p]

pad
pair
pen
pig
pile

lope
proper
supper
copy
copper

wipe
leap
cup
tip
sheep

a) Put the cup on the plate.
b) Wipe the tip of the pen.

B. The Sound [f]

fed
fan
fit
fear
feel

sift
suffer
coffer
sniffing
laughing

wife
beef
cliff
loaf
cuff

a) It doesn't fit his wife.
b) Fast food is a California way of life.

C. Contrasts [p] [f]

peat - feat
pall - fall
peel - feel
pin - fin
plight - flight
plea - flea
paint - faint

snipping - sniffing
supper - suffer
sipped - sift
leaped - leafed
copy - coffee
clips - cliffs
reaps - reefs

stripe - strife
wipe - wife
cheap - chief
cup - cuff
leap - leaf
sheep - sheaf
beep - beef

LESSON 25-H

INSTRUCTOR'S SHEET

D. EXERCISES

Have the students circle the word they hear.

1.	pad	fad	6.	sheep	sheaf
2.	copy	coffee	7.	wipe	wife
3.	pride	fried	8.	tip	tiff
4.	pry	fry	9.	supper	suffer
5.	pool	fool	10.	pit	fit

Have the students circle the sentence they hear.

1. a) He faints often.
   b) He paints often.

2. a) Turn your cup over.
   b) Turn your cuff over.

3. a) Where's the copy I made?
   b) Where's the coffee I made?

4. a) He saw the cliffs yesterday.
   b) He saw the clips yesterday.

Have the students repeat and write the following sentences.

1. French fries, a beef sandwich and a coffee, please.
2. Find a copy of the file.
3. They laughed and played by the pool.

LESSON 25-H

Name:____________________

D. EXERCISES

Directions: Circle the word you hear.

1.	pad	fad
2.	copy	coffee
3.	pride	fried
4.	pry	fry
5.	pool	fool
6.	sheep	sheaf
7.	wipe	wife
8.	tip	tiff
9.	supper	suffer
10.	pit	fit

Directions: Circle the sentence you hear.

1. a) He faints often
   b) He paints often.

2. a) Turn your cup over.
   b) Turn your cuff over.

3. a) Where's the copy I made?
   b) Where's the coffee I made?

4. a) He saw the cliffs yesterday.
   b) He saw the clips yesterday.

Directions: Write the sentences you hear.

1.

2.

3.

Name: ____________________

LESSON 25-I

Directions: Repeat the following words after your teacher.

PRONUNCIATION

I. THE SOUNDS: Final [p] [t] [s] [f]

A. The Sound [p]

lap
cap
mop
top
tip
lip
slip
clap

a) He put the cap on top of the paper.
b) The cat nap in his lap.

B. The Sound [t]

pat
oat
pit
wit
fort
heart
fate
sheet

a) The tent was full of dirt.
b) He put the mat near the chest.

C. The Sound [s]

base
lace
peace
rice
force
bus
loss
place

a) My niece has a nice face.
b) This place is where the bus stops.

D. The Sound [f]

leaf
knife
cuff
wife
laugh
grief
life
safe

a) I laugh from relief.
b) His wife is safe here.

II. CONTRASTS

A. pea - peep
gull - gulp
bee - beep
she - sheep

B. he - heat
ten - tent
too - toot
for - fort

C. ten - tense
fay - face
how - house
rye - rice

D. lie - life
rye - rife
why - wife
who - hoof

LESSON 25-J

INSTRUCTOR'S SHEET

III. EXERCISES

A. Have the students circle the words they hear.

1. **pea** peep
2. **sheep** she
3. fay **face**
4. **why** wife
5. house **how**
6. **heat** he
7. toot **too**
8. **low** loaf
9. **rye** rice
10. gull **gulp**

B. Have the students circle the sentence they hear.

1. a) **That was a big gull.**
   b) That was a big gulp.

2. a) **He prefers rye.**
   b) He prefers rice.

3. a) **I wrote him daily.**
   b) I row him daily.

4. a) Get the tray over there.
   b) **Get the trays over there.**

C. Have the students repeat and write the following sentences.

1. Place the top on the rice.
2. How do you get to the house?
3. Why did you leave your wife?
4. Let's eat the loaf.

Name: ____________________

LESSON 25-J

III. EXERCISES

A. **Directions:** Circle the word you hear.

1.	pea	peep	6.	heat	he
2.	sheep	she	7.	toot	too
3.	fay	face	8.	low	loaf
4.	why	wife	9.	rye	rice
5.	house	how	10.	gull	gulp

B. **Directions:** Circle the sentence you hear.

1. a) That was a big gull.
   b) That was a big gulp.

2. a) He prefers rye.
   b) He prefers rice.

3. a) I wrote him daily
   b) I row him daily.

4. a) Get the tray over there.
   b) Get the trays over there.

C. **Directions:** Write the sentences you hear the teacher say.

1.

2.

3.

4.

Name:________________

LESSON 25-K

Directions: Repeat the following words after the teacher.

PRONUNCIATION

I. THE SOUNDS - Double Initial Clusters Beginning. S

A. Cluster [sp]

sped
spy
spit
spot
span
spat
speak
speed
spite

a) This is the spot where he spied from.
b) He cast a spell as he spoke.

B. Cluster [sl]

slack
slay
slip
slow
slum
sling
sled
slide
slot

a) He slipped badly and had to wear a sling.
b) Slide the part slowly into the slot.

C. Cluster [st]

sty
stick
stall
stack
stay
still
stow
stare
stand

a) They stood and stared at Stan.
b) Stay here until the stakes are stacked.

D. Cluster [sk]

scan
sky
scot
skill
skip
scum
skull
scare
scat

a) They scanned the sky for the plane.
b) She was scared the baby had hurt his skull.

II. CONTRASTS

A. sit - spit - slit
sun - scum - slum
say - stay - slay
sip - slip - skip
sat - spat - scat

sick - slick - stick
said - sled - sped
sill - spill - skill
sigh - spy - sky
side - slide - spied

LESSON 25-L

III. EXERCISES

A. Have the students circle the word they hear.

1.	sit	spit	6.	sick	stick
2.	sky	sigh	7.	sell	spell
3.	sip	skip	8.	said	sled
4.	spat	sat	9.	sum	scum
5.	slide	side	10.	skill	sill

B. Have the students circle the sentence they hear.

1. a) Can you spell it?
   b) Can you sell it?

2. a) He spat on the floor.
   b) He sat on the floor.

3. a) She cleaned the sill.
   b) She cleaned the spill.

4. a) They saw the sun at noon.
   b) They saw the slum at noon.

C. Have the students repeat and write what they hear.

1. Instead of slowing, he sped through the slum.
2. She stood still and stared at the sky.
3. They sat on the same spot the spy died.
4. "Stick to the skills you know," He said.

LESSON 25-L

Name:________________________

III. EXERCISES

A. Directions: Circle the word you hear.

1.	sit	spit
2.	sky	sigh
3.	sip	skip
4.	spat	sat
5.	slide	side
6.	sick	stick
7.	sell	spell
8.	said	sled
9.	sum	scum
10.	skill	sill

B. Directions: Circle the sentence you hear.

1. a) Can you spell it?
   b) Can you sell it?

2. a) He spat on the floor.
   b) He sat on the floor.

3. a) She cleaned the sill.
   b) She cleaned the spill

4. a) They saw the sun at noon.
   b) They saw the slum at noon.

C. Directions: Write the sentences you hear the teacher read.

1.

2.

3.

4.

Name:________________________

LESSON 25-M

Directions: Practice the following sounds with the teacher.

PRONUNCIATION

I. THE SOUNDS - Triple Initial Clusters Beginning with [s]

A. The Sound [spr]

spread
spray
spring
sprawl
sprain
spry

a) In spring you see sprays of flowers.
b) The ranch was a sprawling spread.

B. The Sound [str]

strand
stray
strip
stroke
street
straw

a) He stroked the stray cat.
b) The street is called Sunset Strip.

C. The Sound [skr]

screw
scram
scrap
screen
scroll
scream

a) Don't put screws in scrap metal.
b) Turn the scroll and watch the screen.

D. The Sound [skw]

square
squeeze
squirm
squeak
squat
squid

a) Squeeze your hair until it squeaks.
b) She squirms at the sight of squid.

E. The Sound [spl]

splash
split
splice
splay
splendid
spleen

a) He split his spleen in the accident.
b) The child made a splendid splash.

II. CONTRASTS

say - spay - spray
sam - scam - scram
say - stay - stray
sit - spit - split
sane - spain - strain

soak - stoke - stroke
sand - stand - strand
sigh - spy - spry
said - sped - spread
sing - sting - string

INSTRUCTOR'S SHEET

LESSON 25-N

III. EXERCISES

A. Have the students circle the word they hear.

1.	spat	sprat
2.	sting	string
3.	sped	spread
4.	stroke	stoke
5.	scum	scrum
6.	scott	squat
7.	stray	stay
8.	split	spit
9.	scam	scram
10.	spain	sprain

B. Have the students circle the sentence they hear.

1. a) It is better if you stroke it.
   b) It is better if you stoke it.
2. a) We should splice it.
   b) We should spice it.
3. a) The sting hurt his arm.
   b) The string hurt his arm.
   c) The sling hurt his arm.
4. a) They decided to spay the cat.
   b) They decided to spray the cat.

C. Have the students repeat and write the sentences they hear you read.

1. He stroked the sprain and splashed it with water.
2. The screws and scrap metal are behind the screen.
3. The child's scream gave him a splitting headache.

LESSON 25-N

Name:________________________

III. EXERCISES

A. Directions: Circle the word you hear.

1. spat sprat
2. sting string
3. sped spread
4. stroke stoke
5. scum scrum
6. scott squat
7. stray stay
8. split spit
9. scam scram
10. spain sprain

B. Directions: Circle the sentence you hear.

1. a) It is better if you stroke it.
   b) It is better if you stoke it.

2. a) We should splice it.
   b) We should spice it.

3. a) The sting hurt his arm.
   b) The string hurt his arm
   c) The sling hurt his arm

4. a) They decided to spay the cat.
   b) They decided to spray the cat.

C. Directions: Write the sentences the teacher reads aloud.

1.

2.

3.

FLASHCARDS

LESSONS 1-24

Never use equipment

without permission

7:15

7:30

7:45

8:00

LESSON 1

Don't go in off-limit places

Sign-up Sheet

No Smoking

clean-up

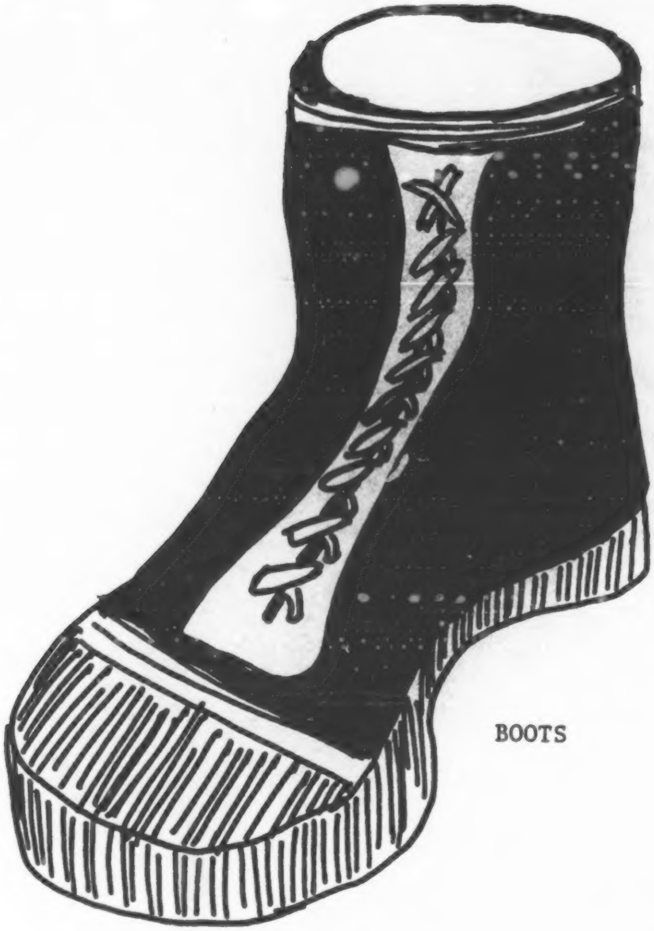
Don't be late

LESSON 1

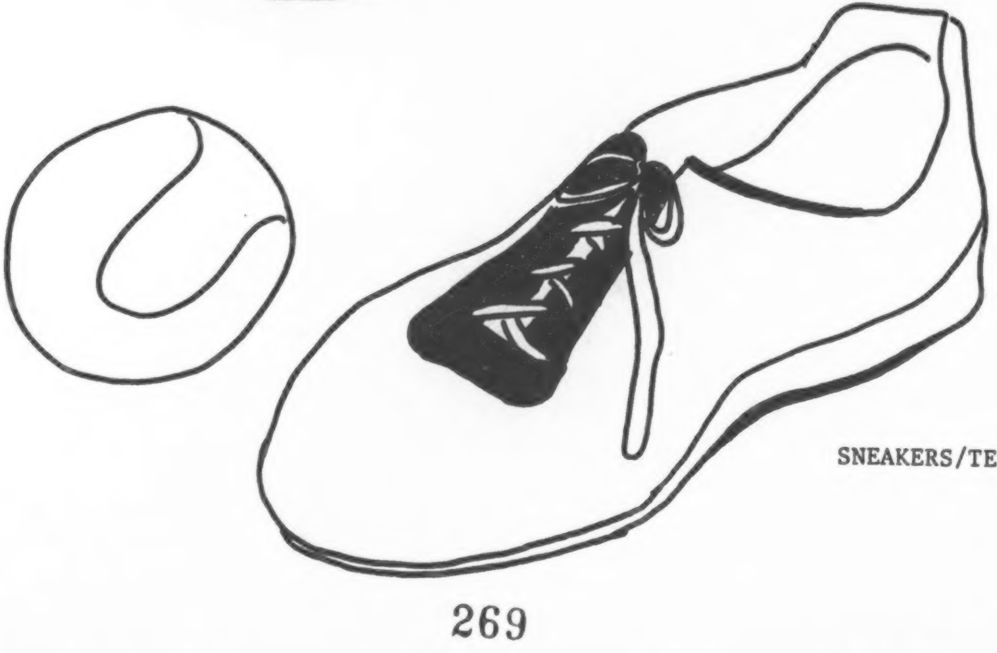
Follow all directions

No horsing around

LESSON 2

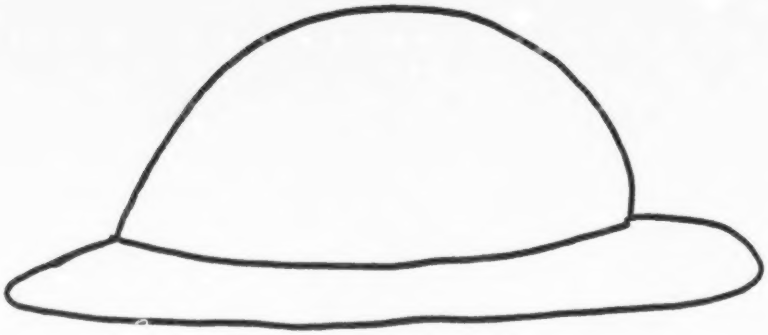


BOOTS

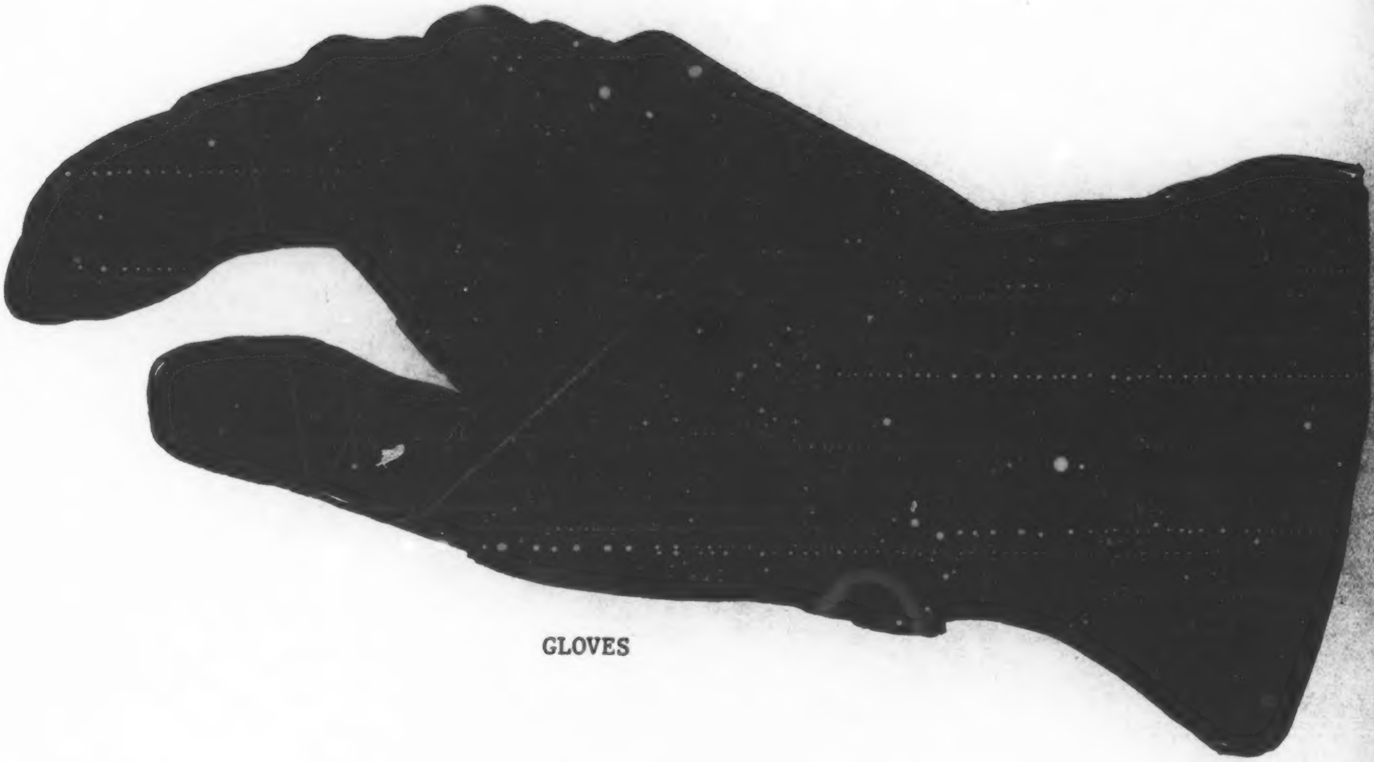


SNEAKERS/TENNIS SHOES

LESSON 2

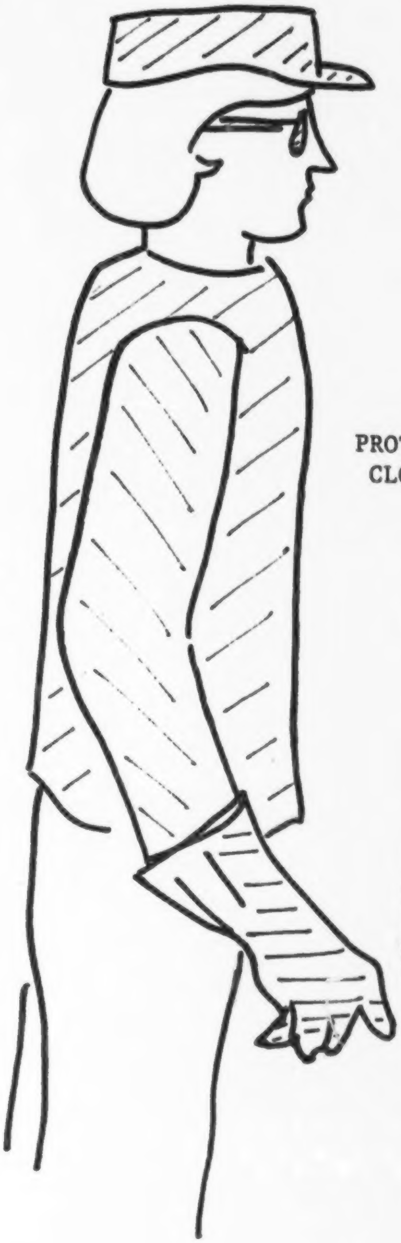


HARD HAT

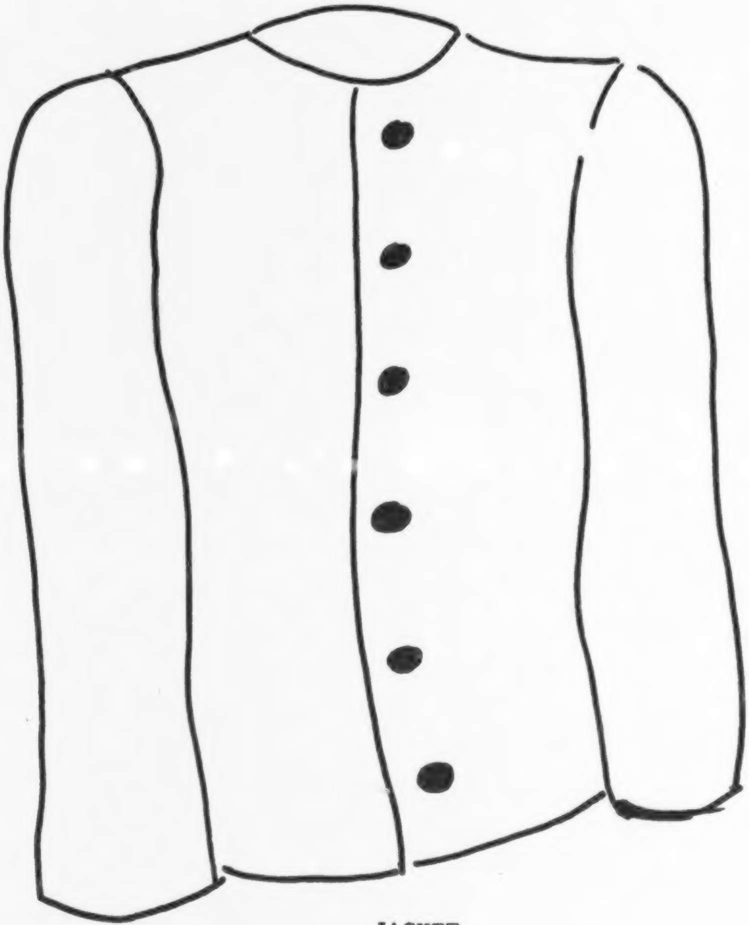


GLOVES

LESSON 2

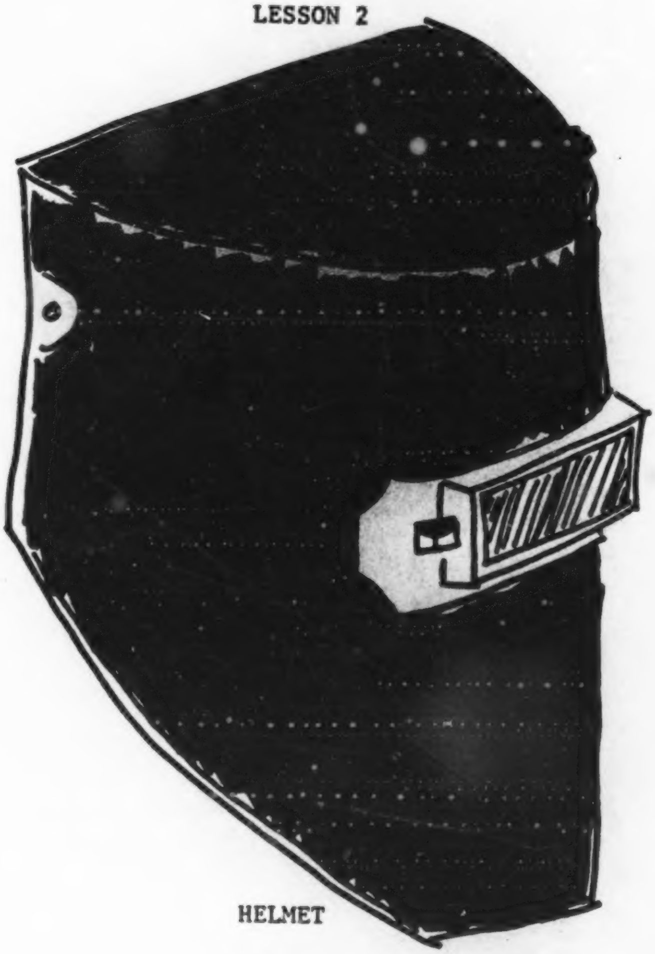


PROTECTIVE CLOTHING

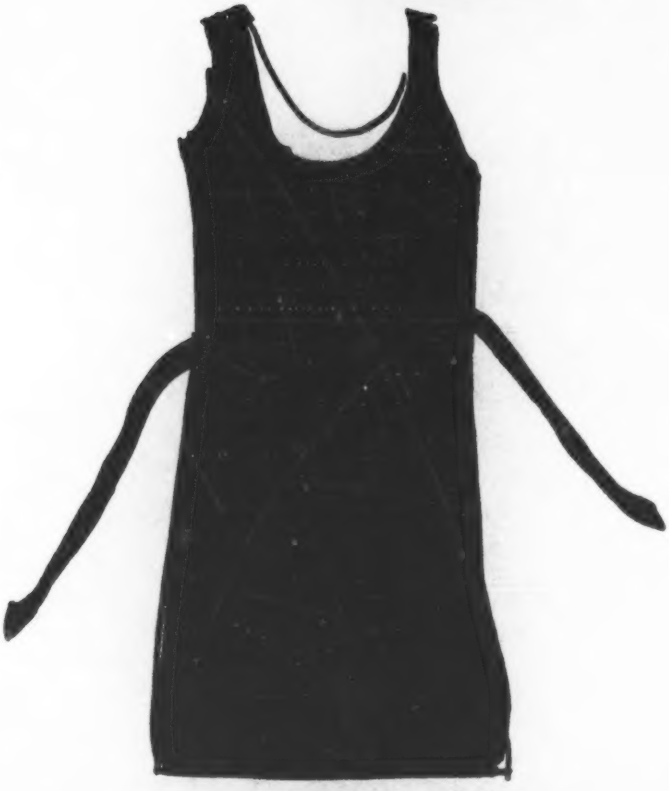


JACKET

LESSON 2

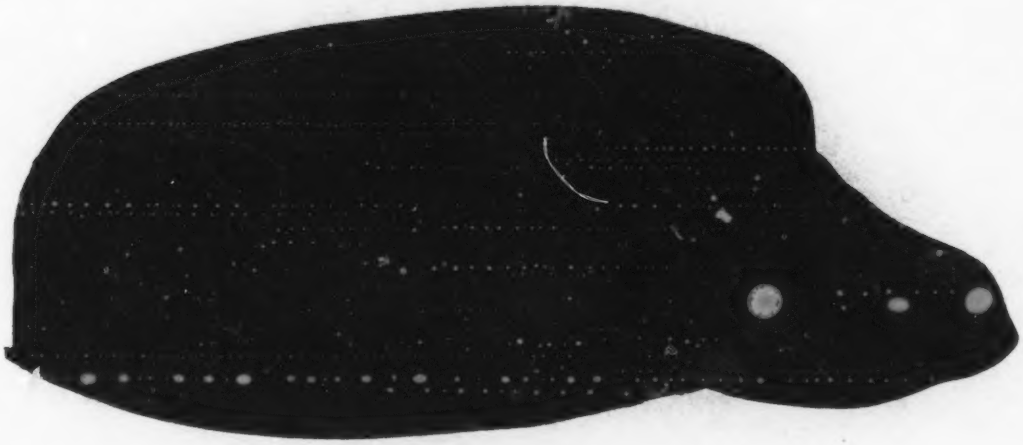


HELMET

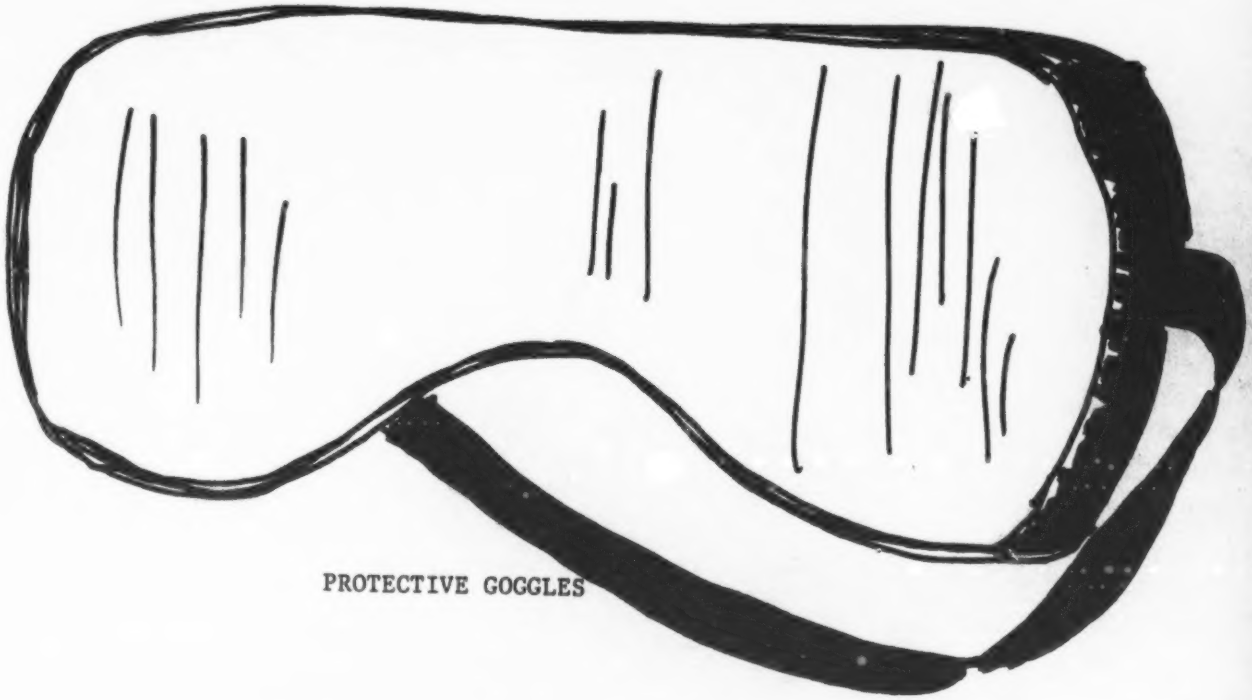


APRON

LESSON 2

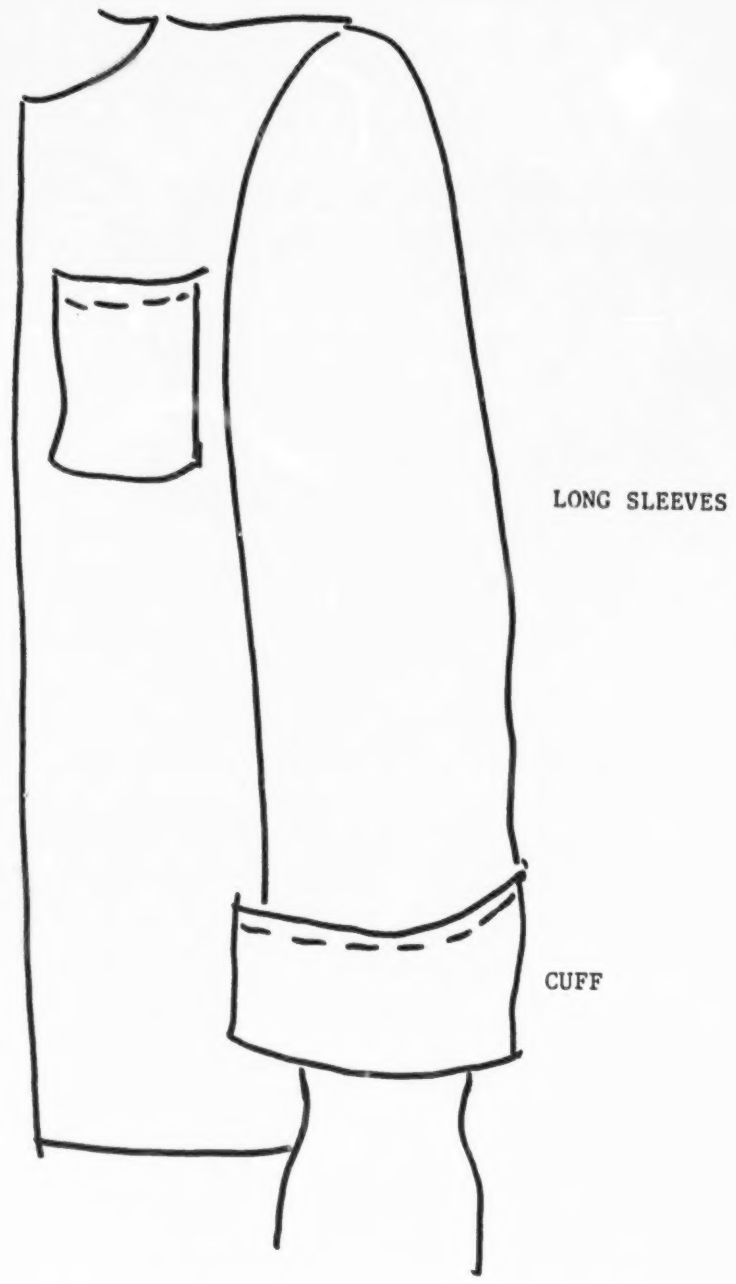


CAP

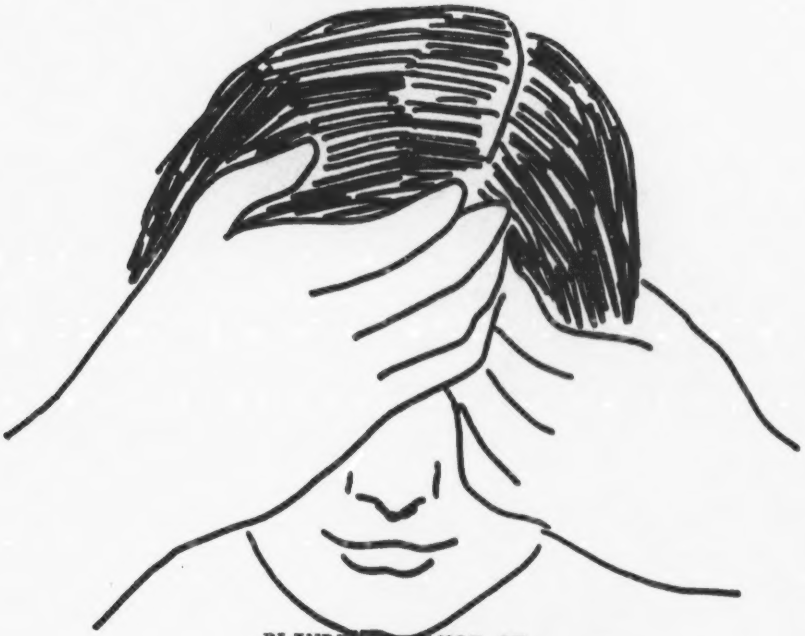


PROTECTIVE GOGGLES

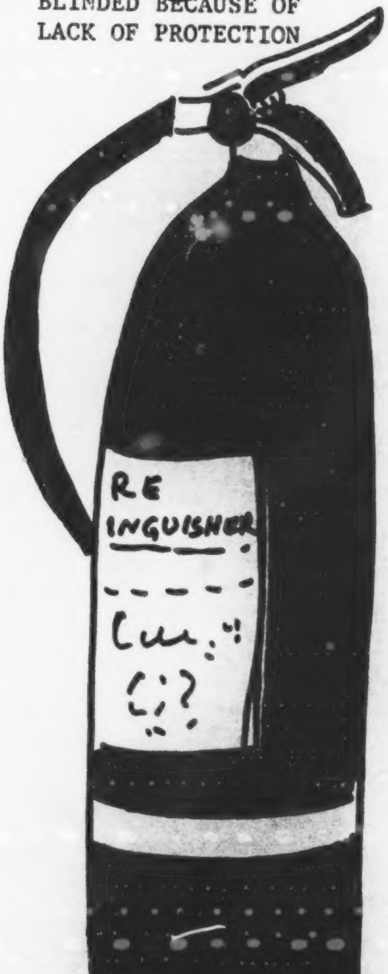
LESSON 2


LONG SLEEVES
CUFF

LESSON 3

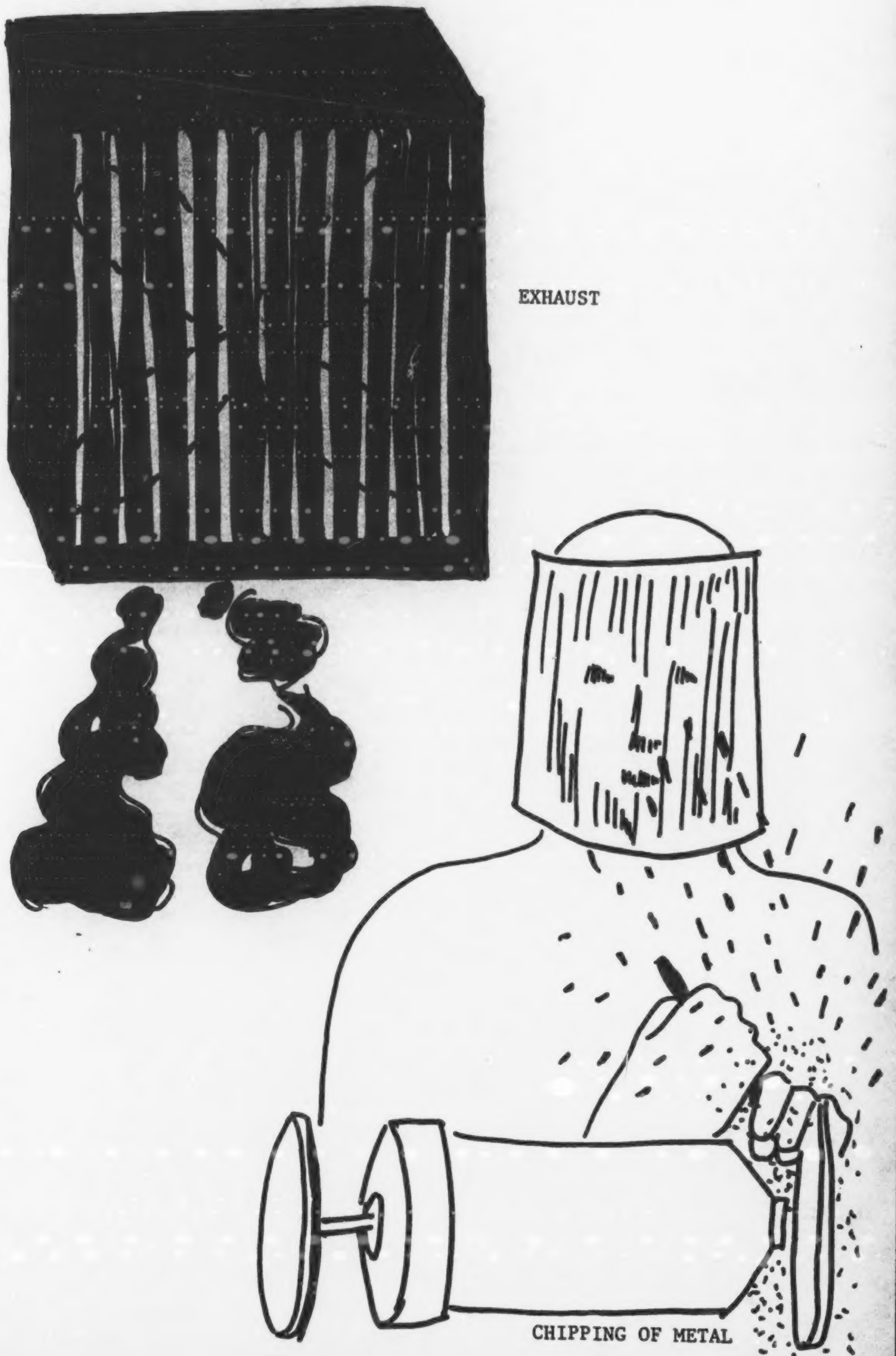


BLINDED BECAUSE OF
LACK OF PROTECTION

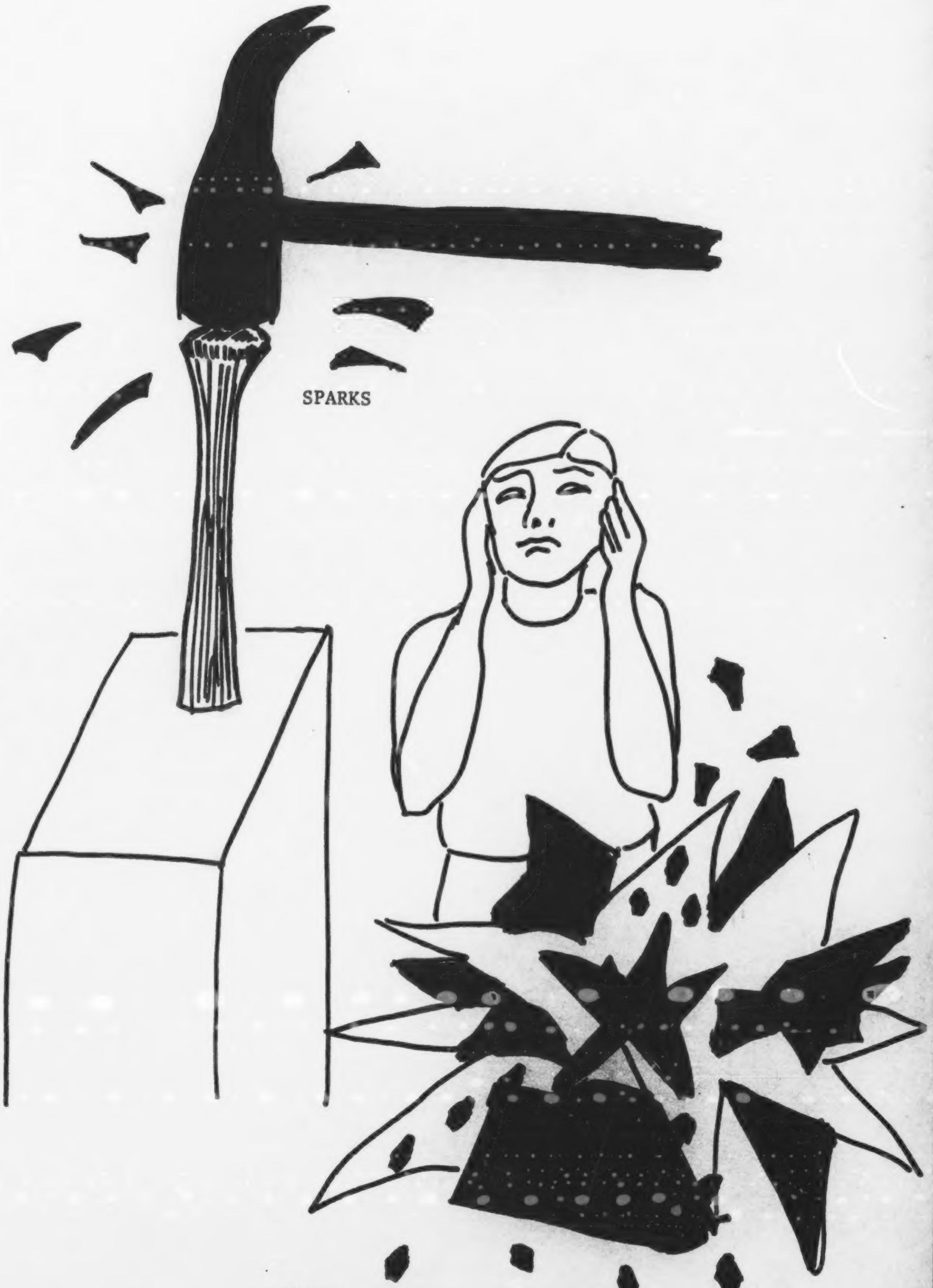

RE
INGUISHER

FIRE EXTINGUISHER

LESSON 3

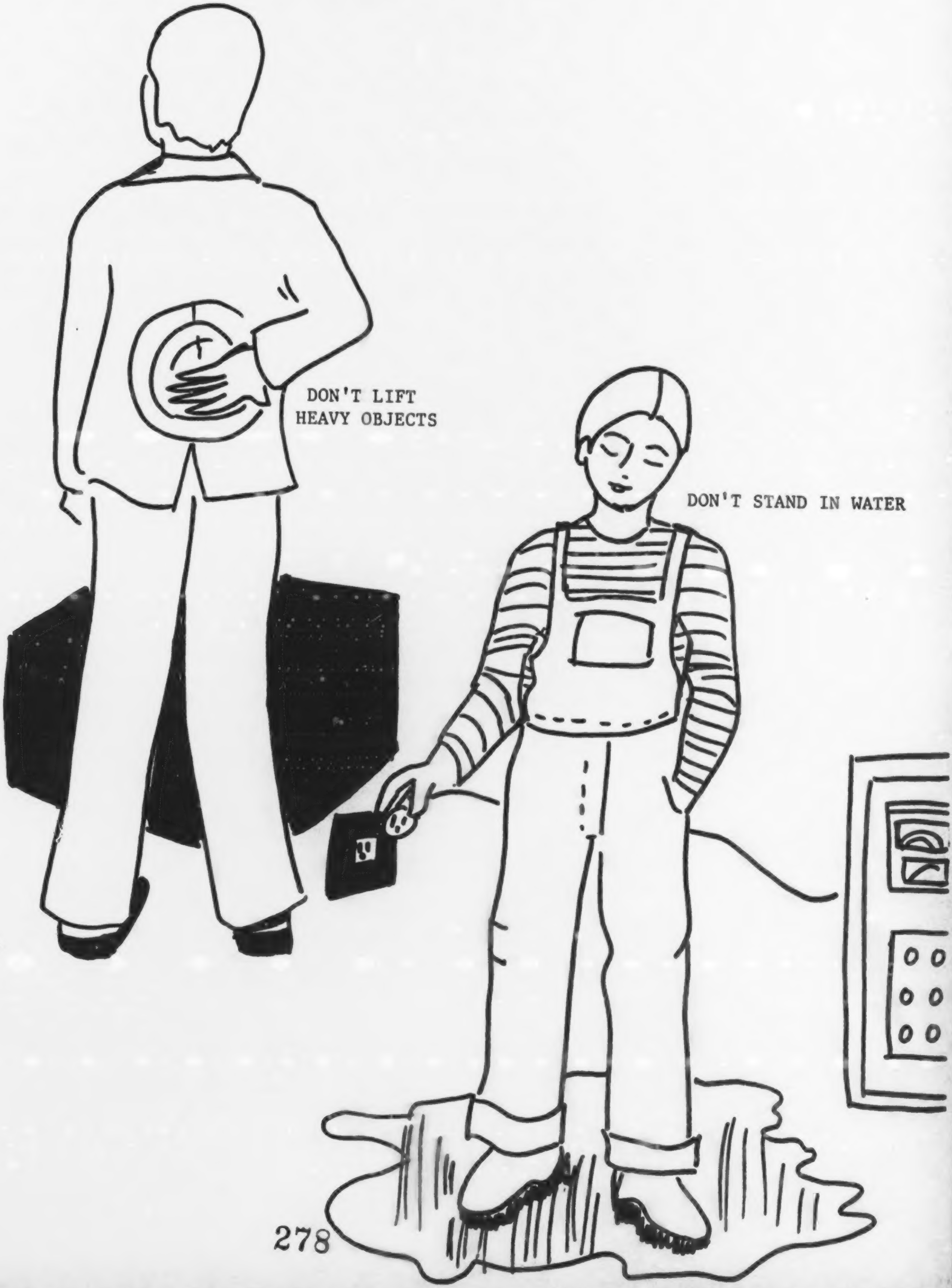

EXHAUST
CHIPPING OF METAL

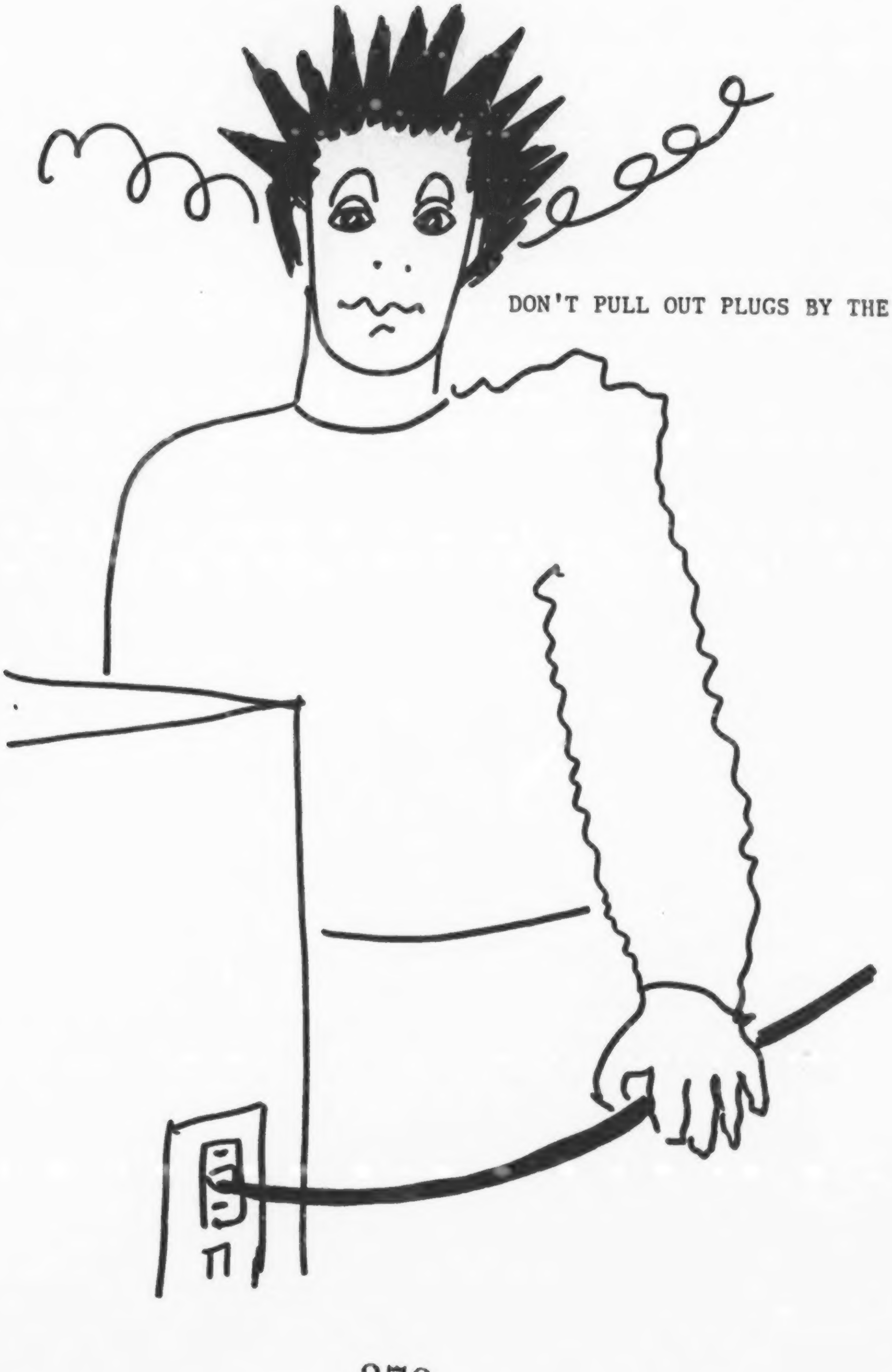
LESSON 3



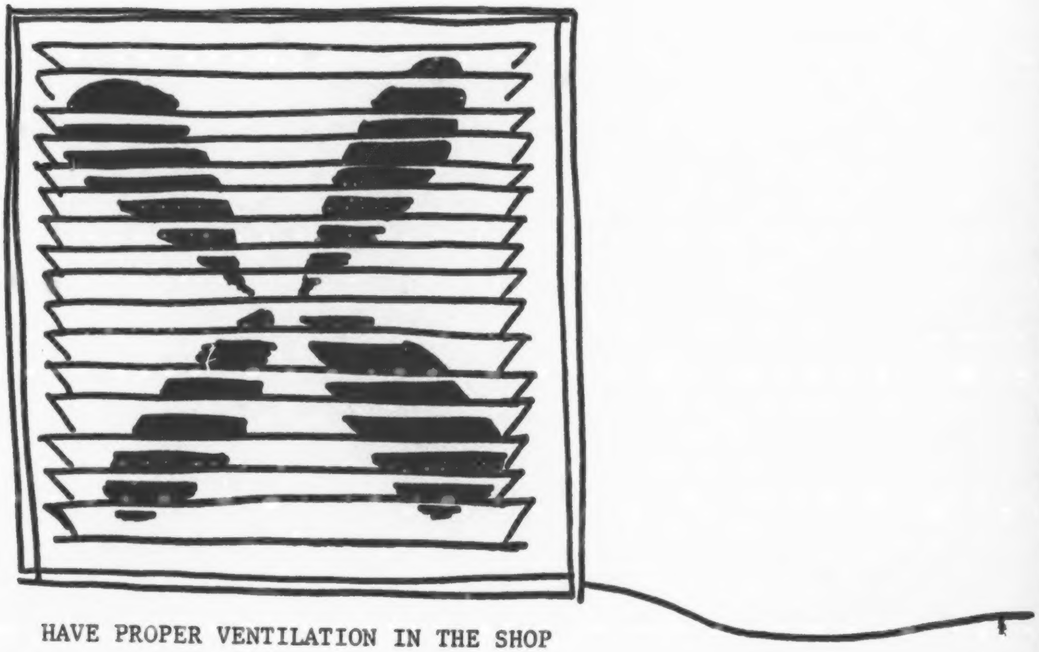
EXPLOSION

LESSON 3


DON'T LIFT HEAVY OBJECTS
DON'T STAND IN WATER



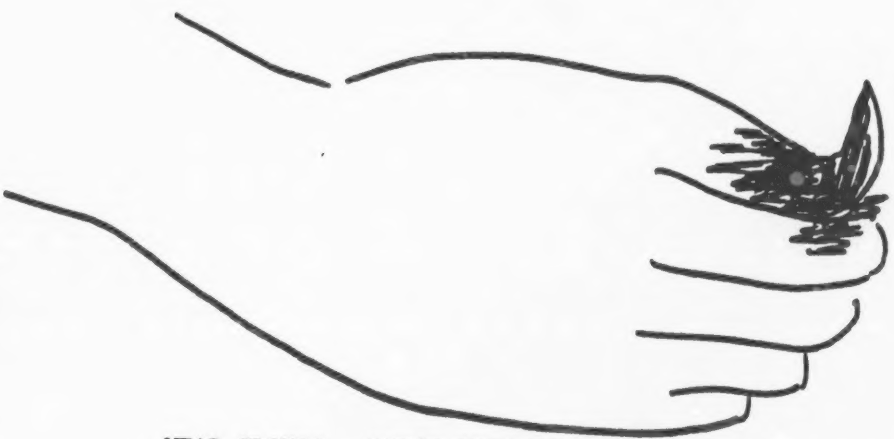
DON'T PULL OUT PLUGS BY THE WIRE



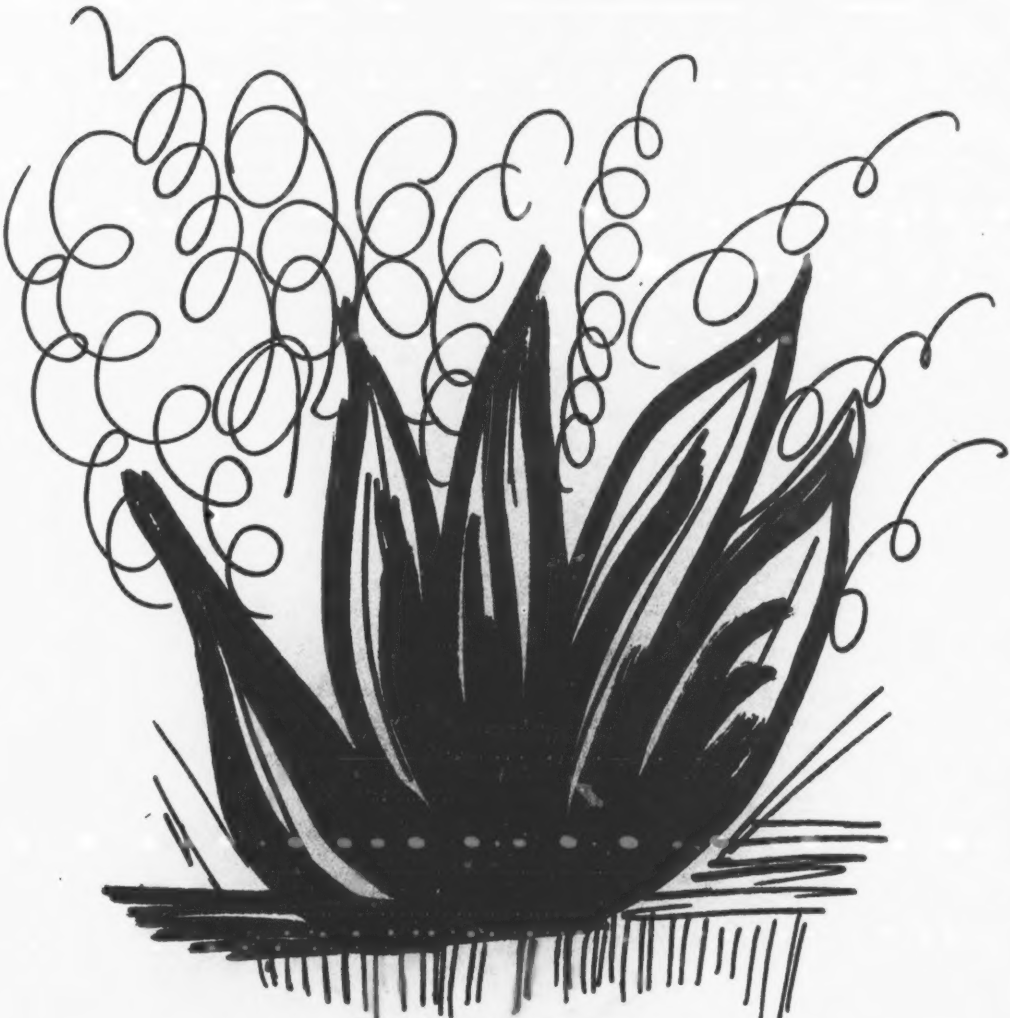
HAVE PROPER VENTILATION IN THE SHOP

BE CAREFUL OF OPEN FLAMES

LESSON 3

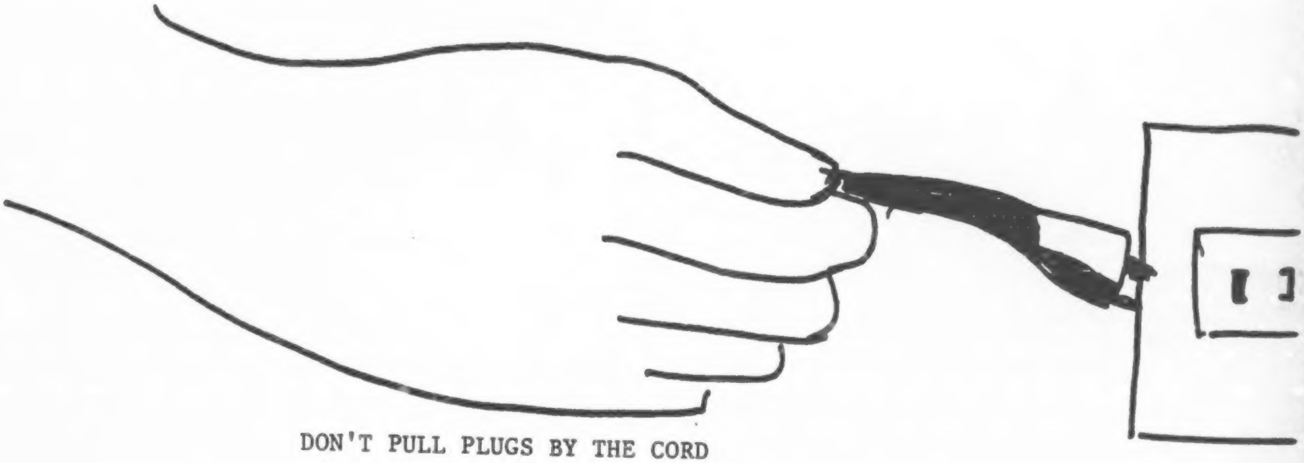


WEAR GLOVES - DON'T BURN YOUR HANDS

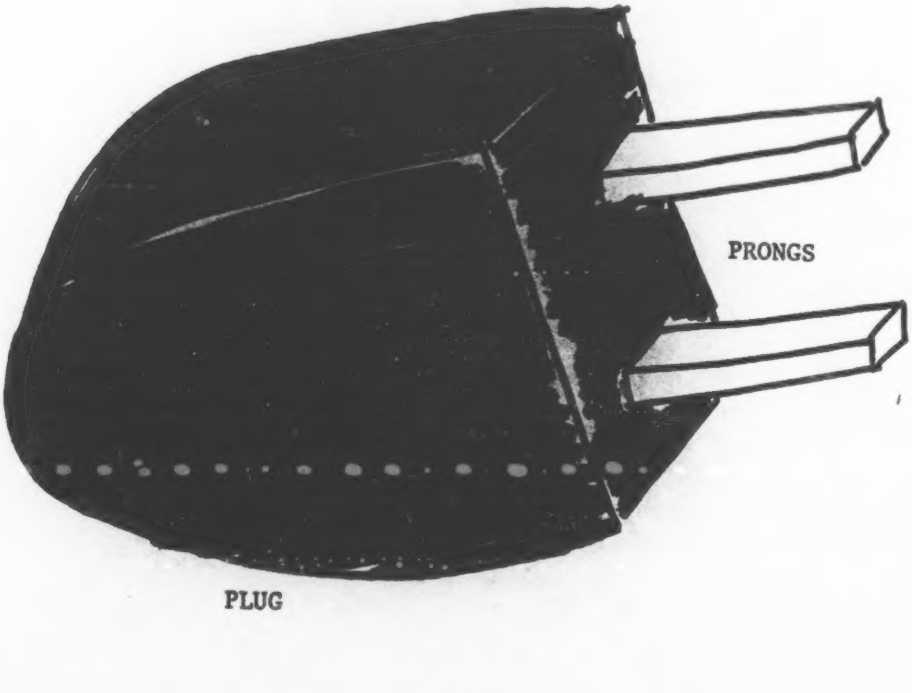


DON'T INHALE SMOKE

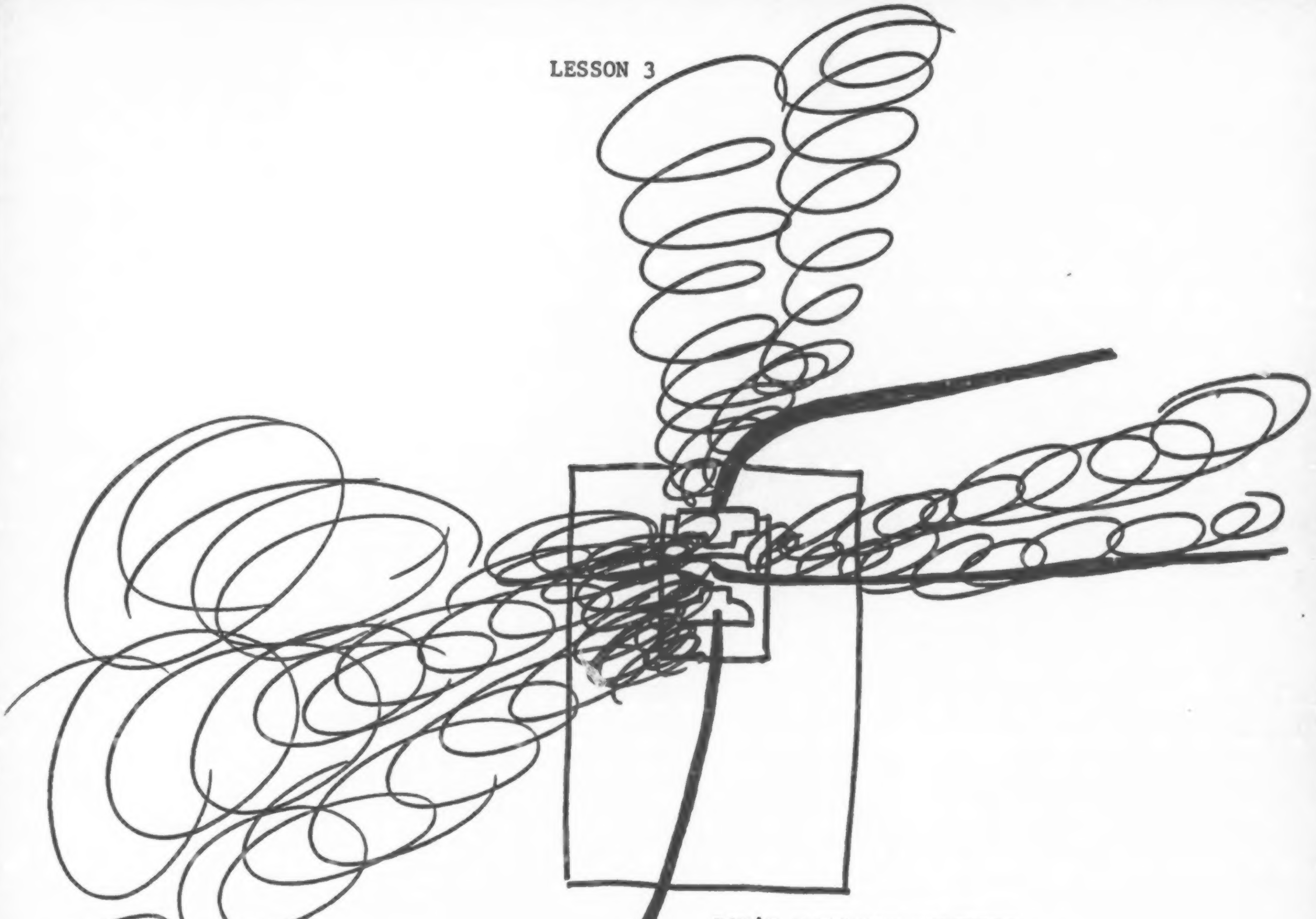
LESSON 3



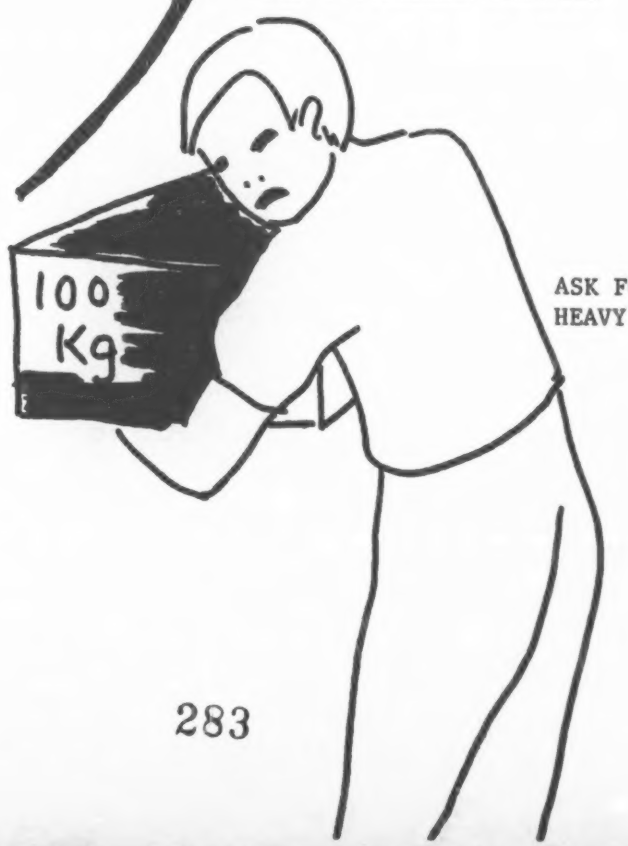
DON'T PULL PLUGS BY THE CORD


PRONGS
PLUG

LESSON 3

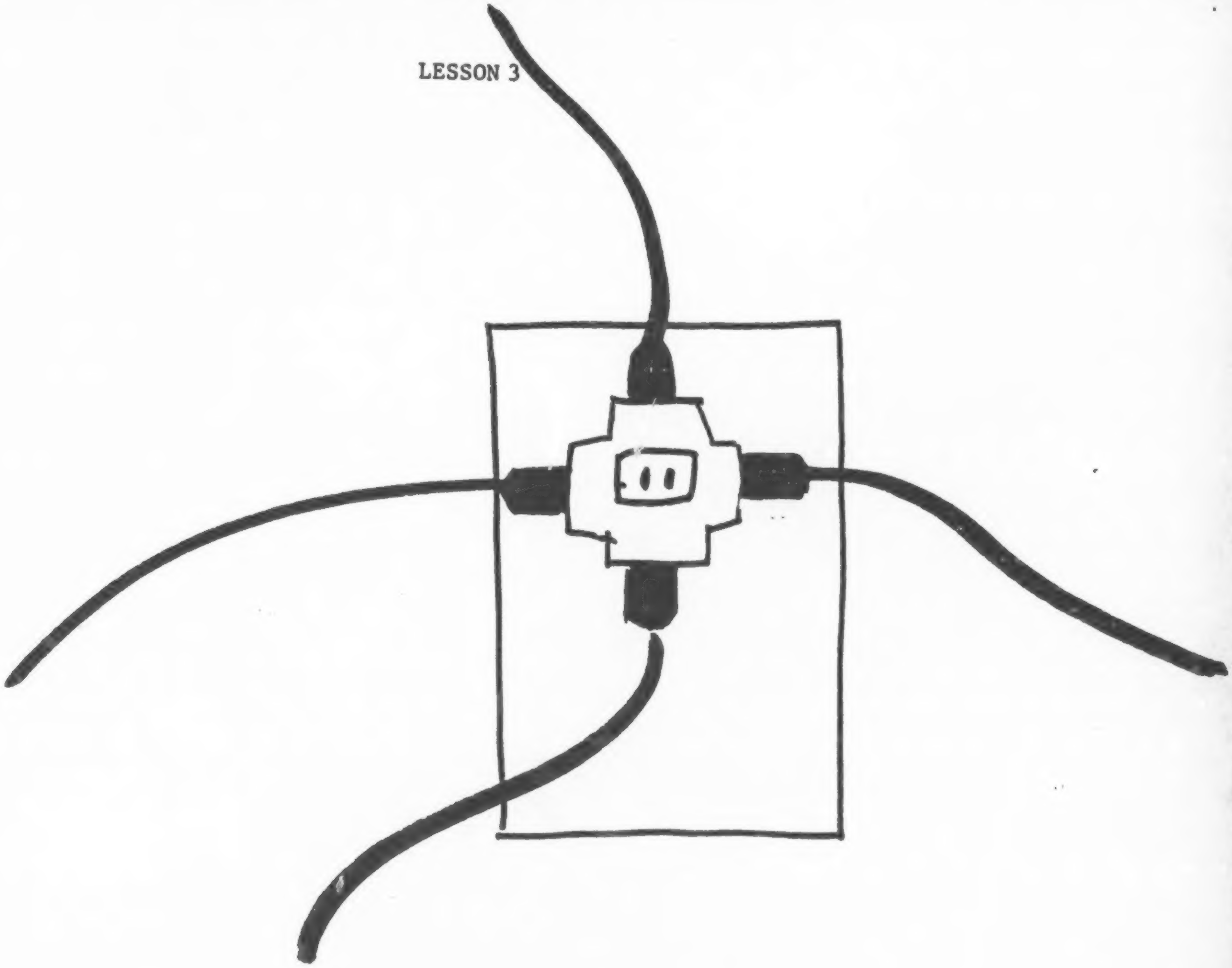


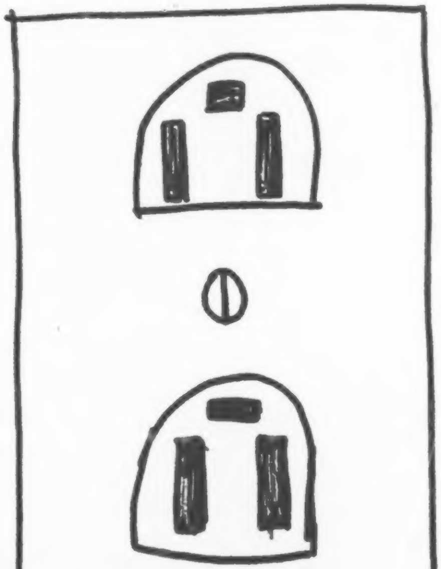
DON'T OVERLOAD CIRCUITS



ASK FOR HELP WHEN LIFTING
HEAVY WEIGHT

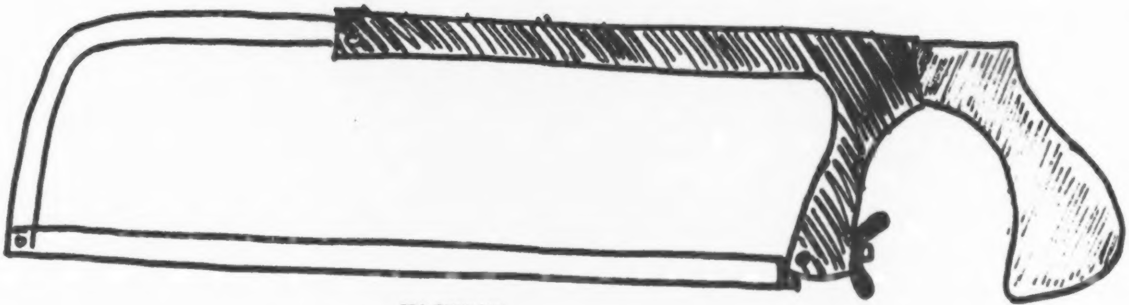
LESSON 3





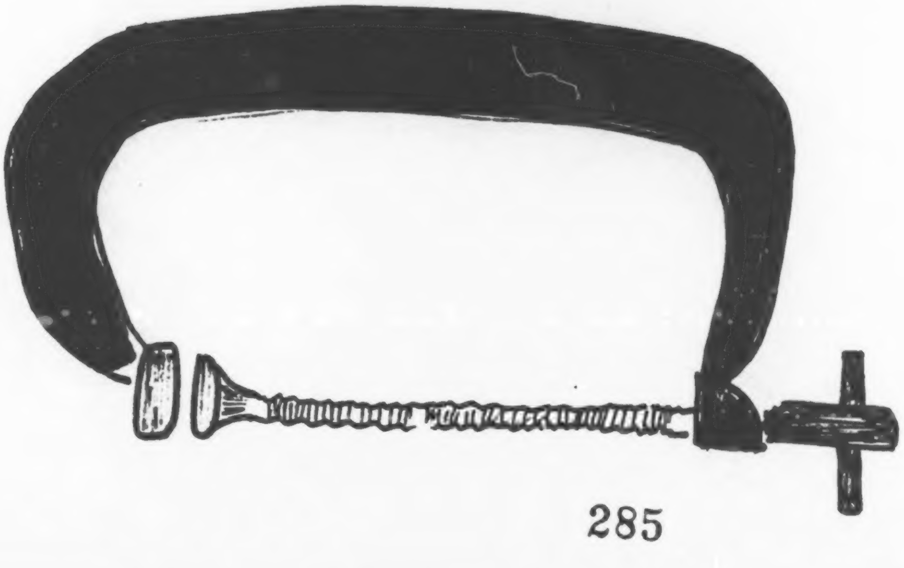
SOCKETS

LESSON 4

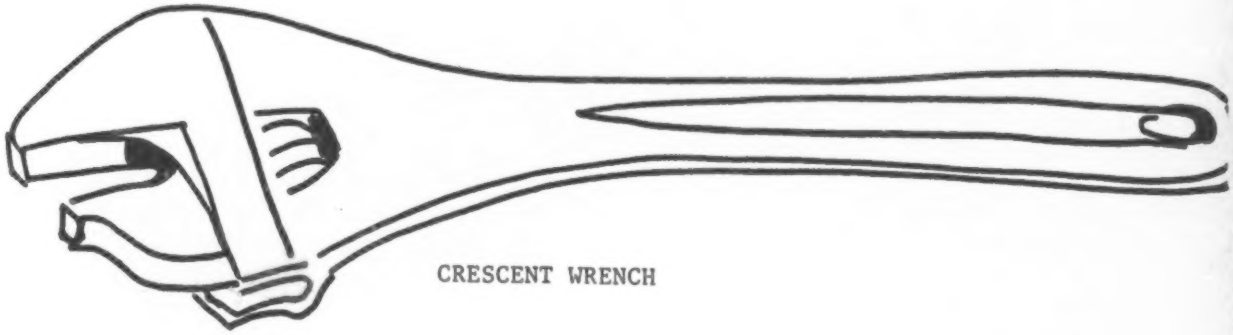


HACKSAW

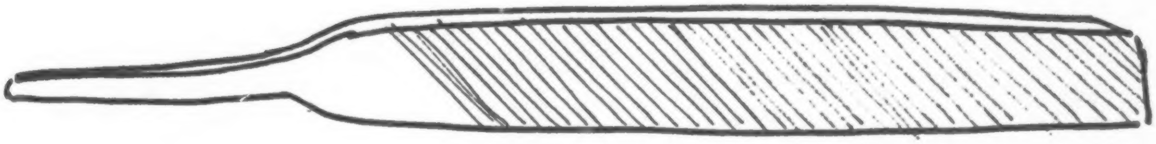
C-CLAMP



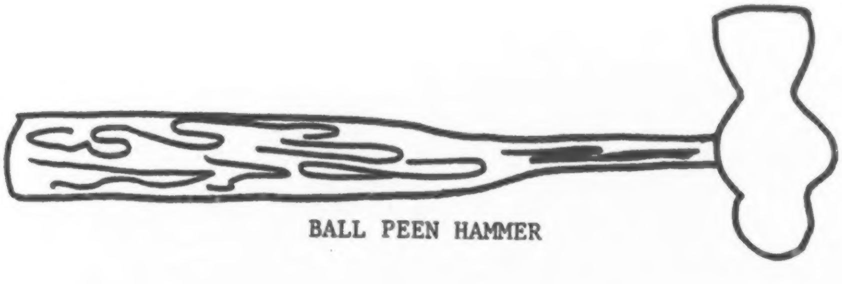
LESSON 4



CRESCENT WRENCH

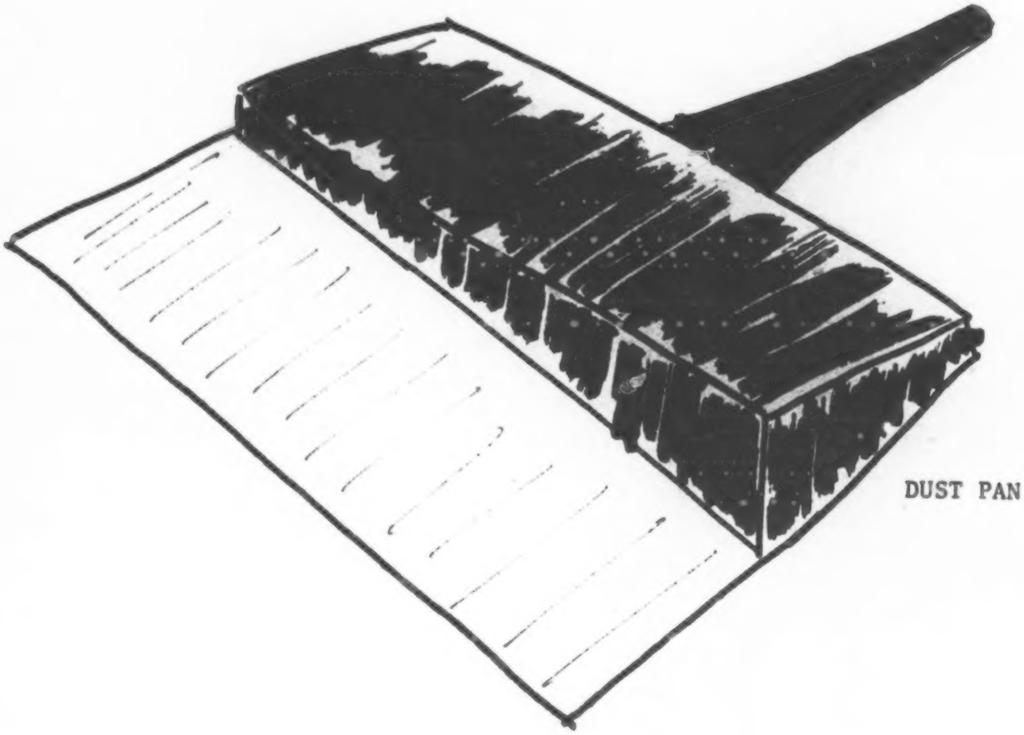


FILE



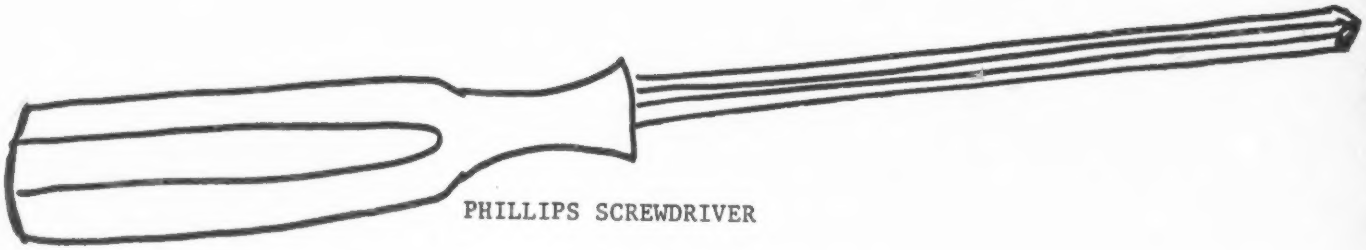
BALL PEEN HAMMER

LESSON 4

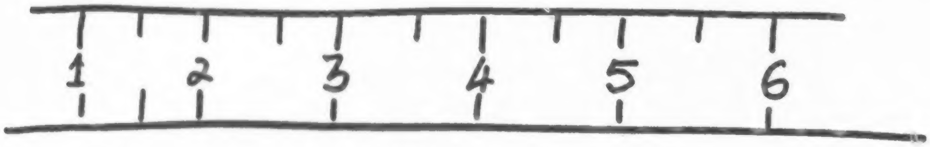


DUST PAN

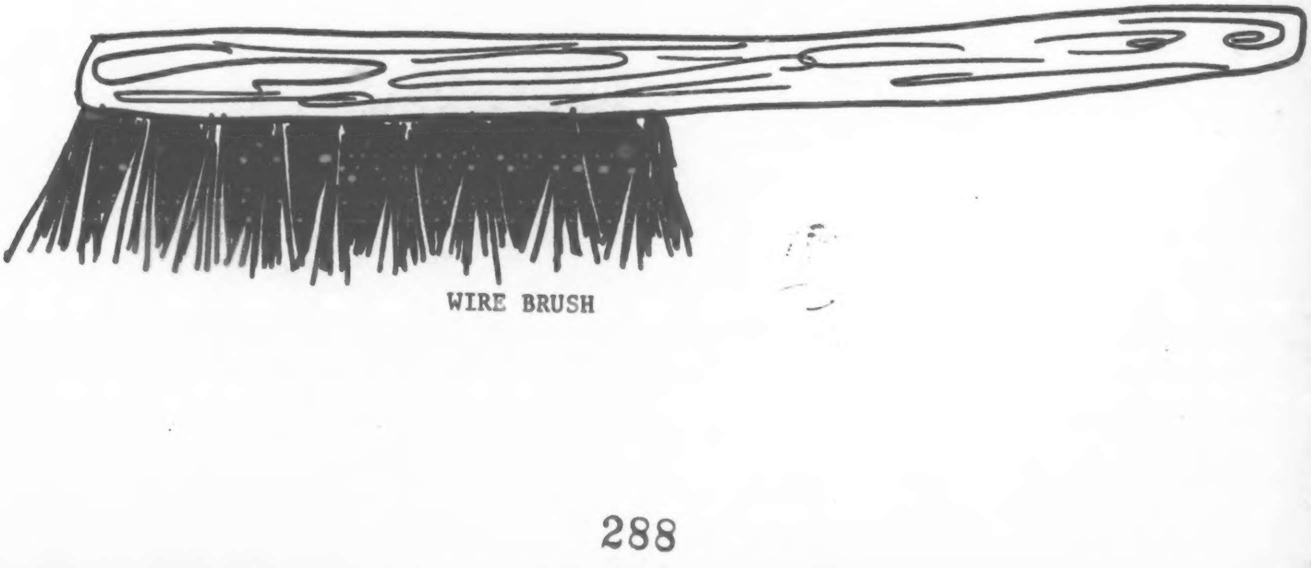
LESSON 4



PHILLIPS SCREWDRIVER

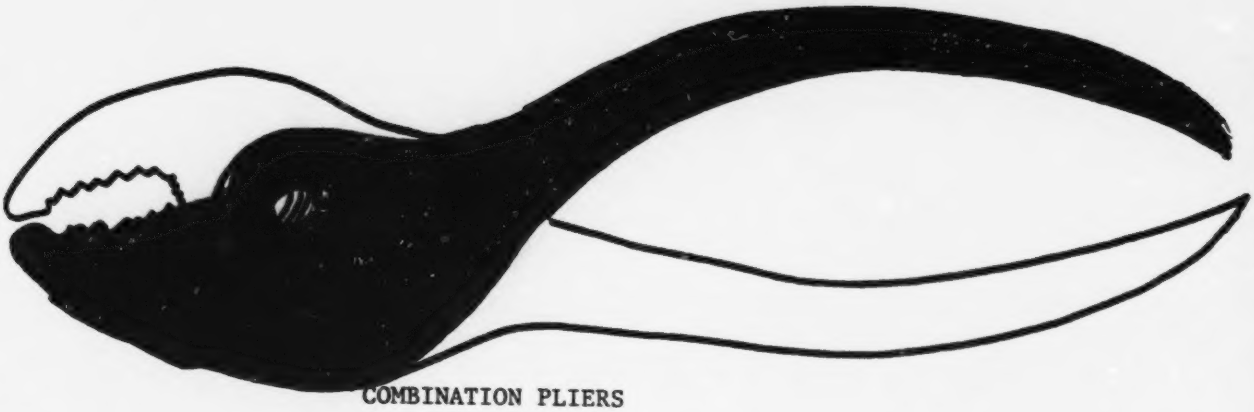


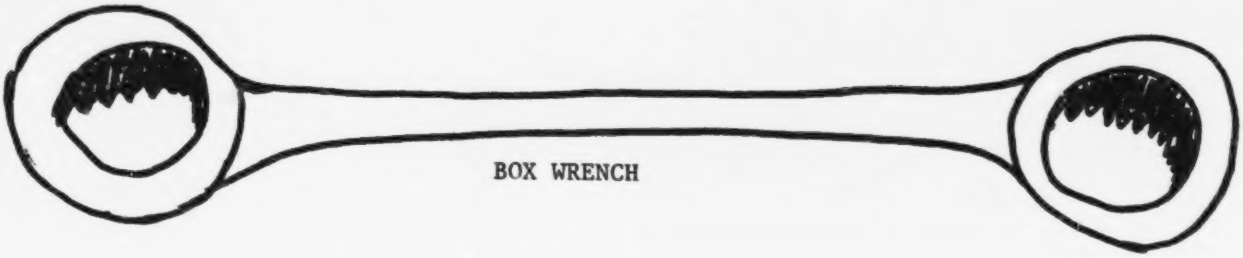
SCALE/RULER

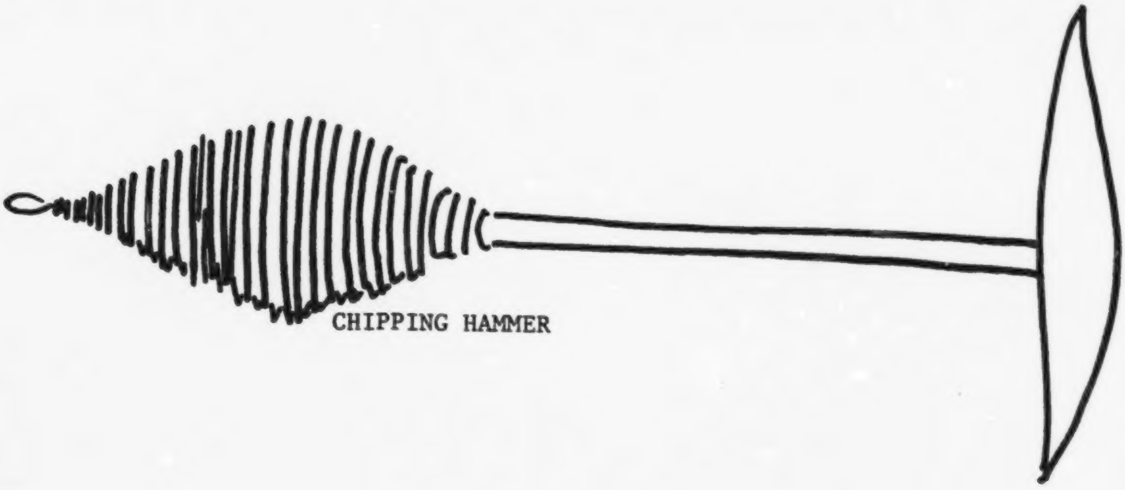


WIRE BRUSH

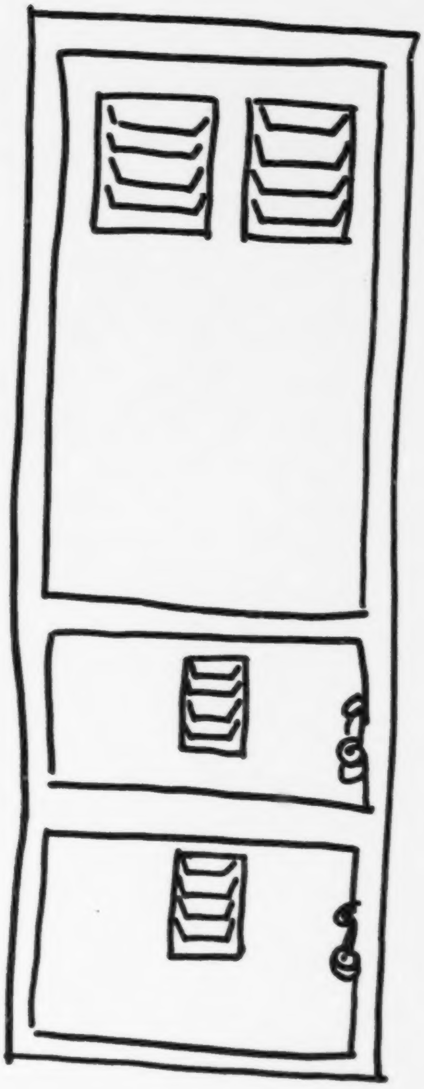
LESSON 4


COMBINATION PLIERS

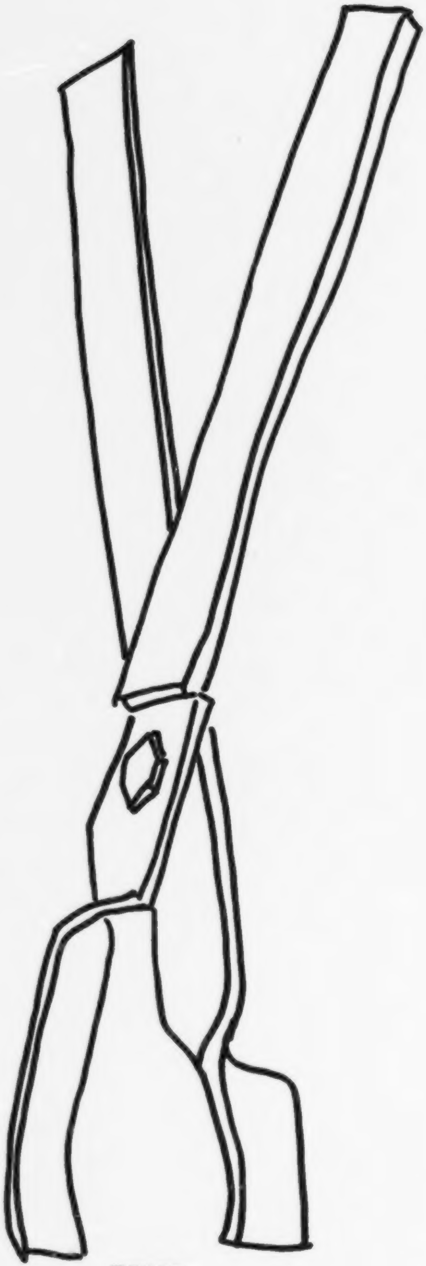

BOX WRENCH


CHIPPING HAMMER

LESSON 4



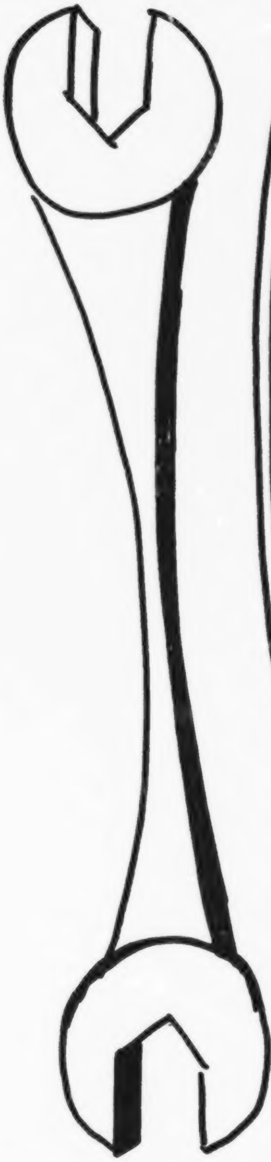
LOCKER



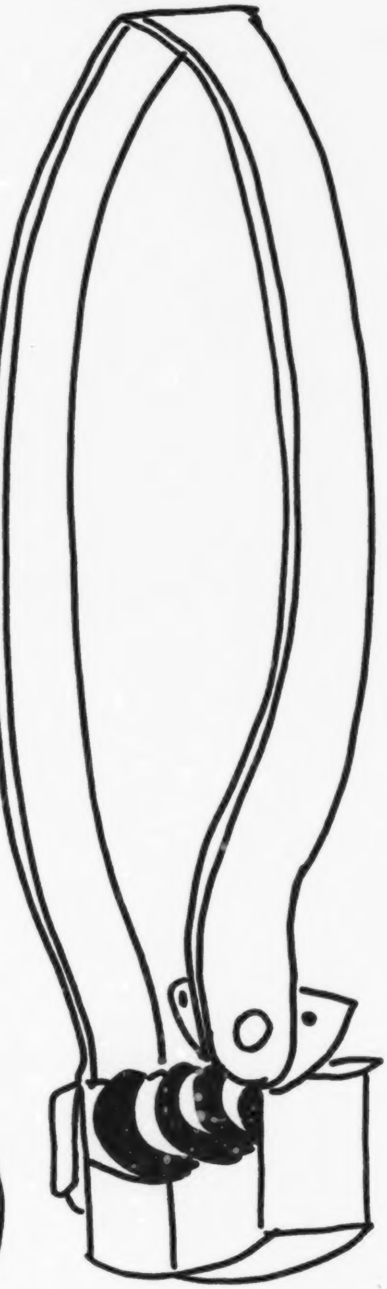
TONGS

LESSON 4

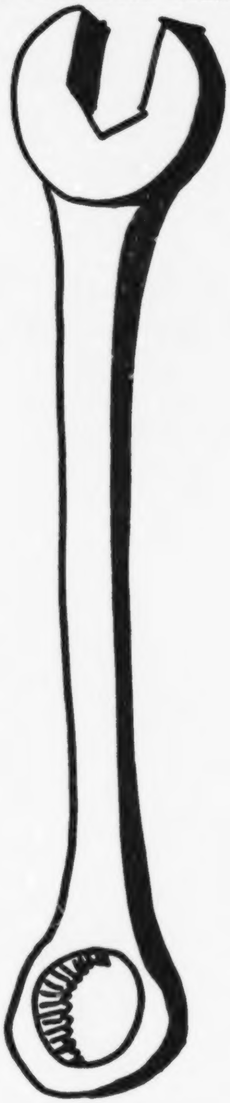
OPEN END WRENCH



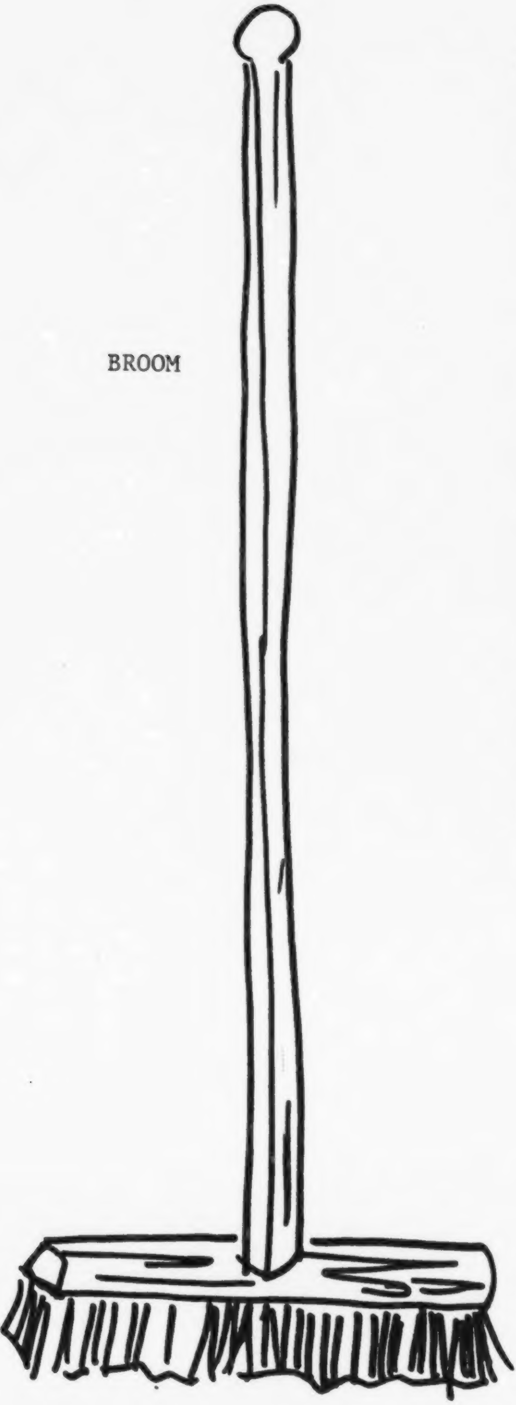
SPARK LIGHTER

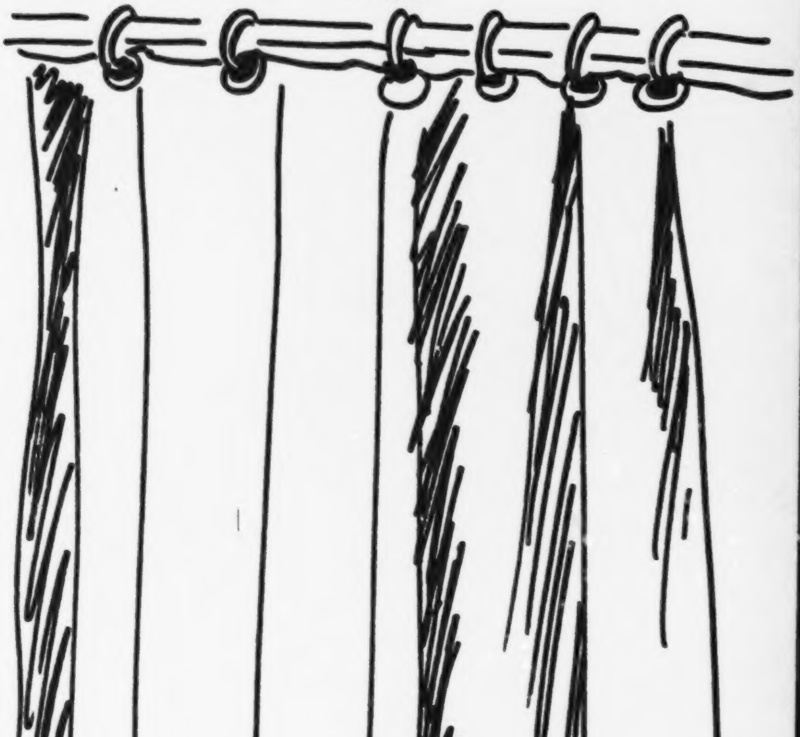


COMBINATION WRENCH

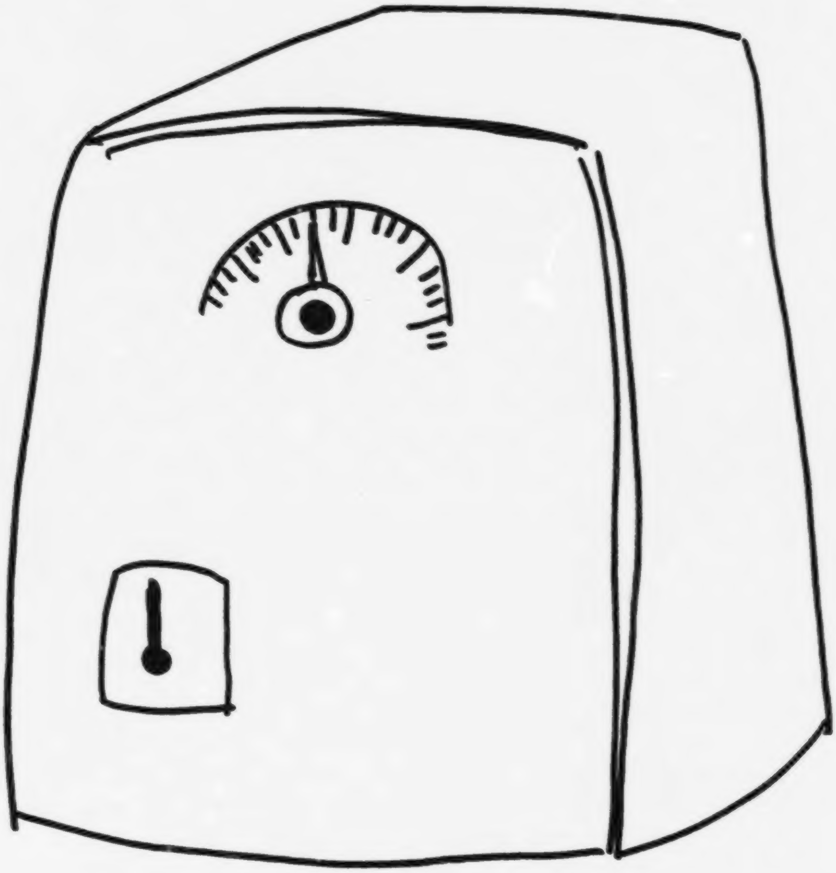


LESSON 4


BROOM

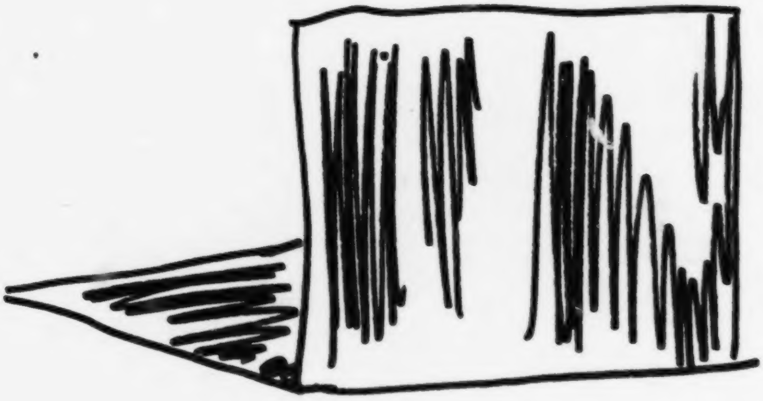

SCREEN

LESSON 6

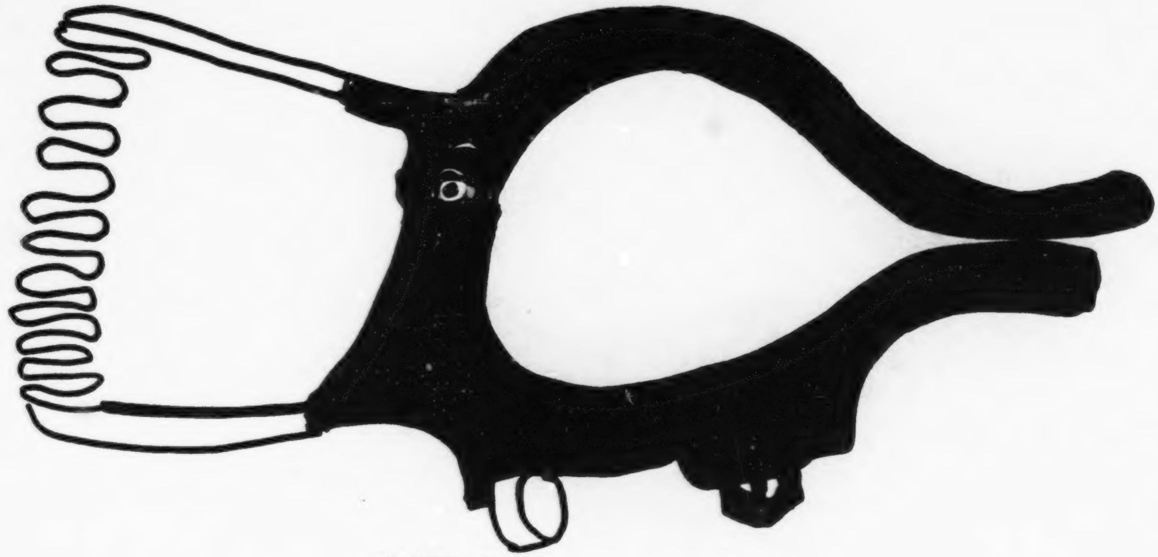


WELDING MACHINE

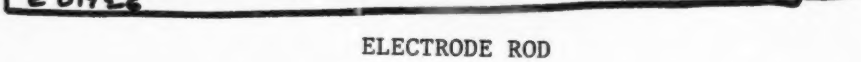
SCRAP METAL



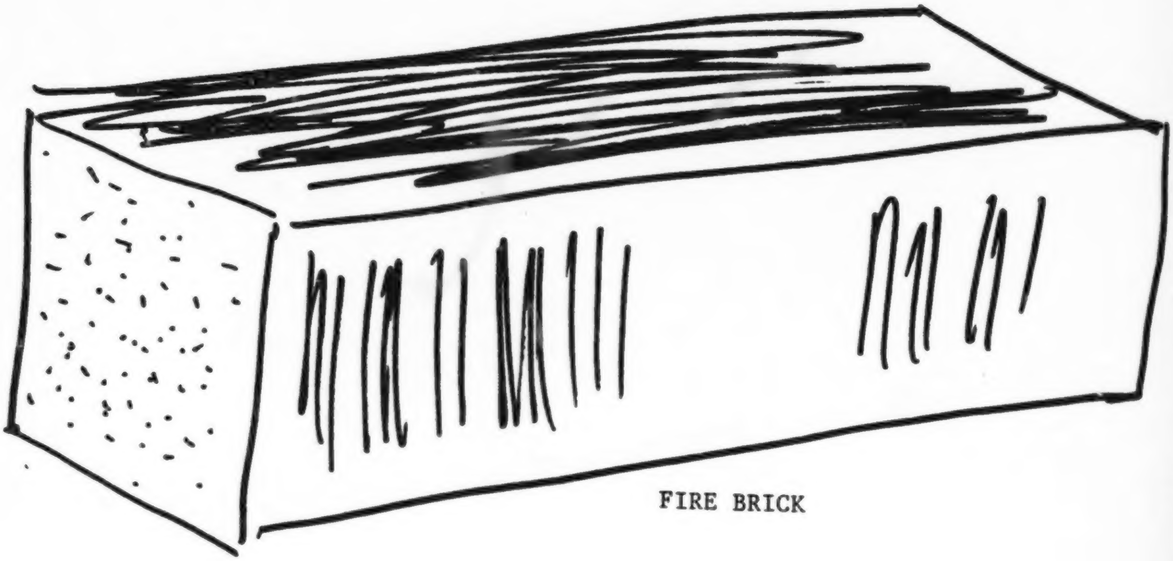
LESSON 6



GROUND CLAMP

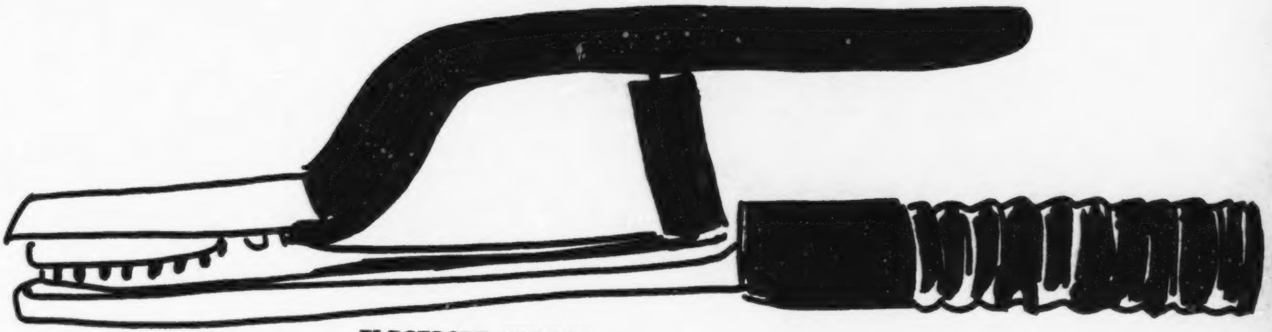


ELECTRODE ROD

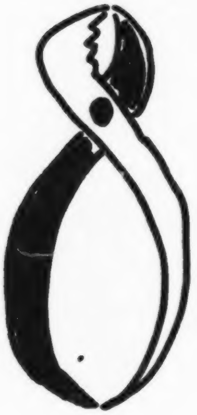


FIRE BRICK

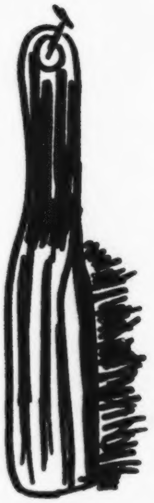
LESSON 6



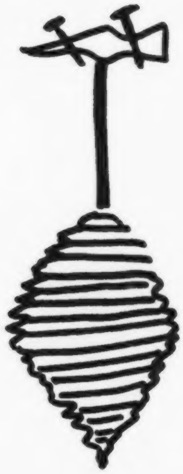
ELECTRODE HOLDER



PLIERS

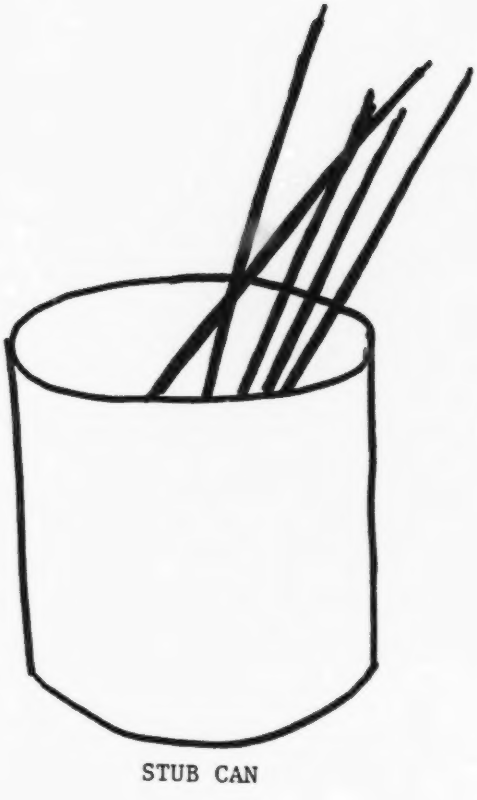


BRUSH



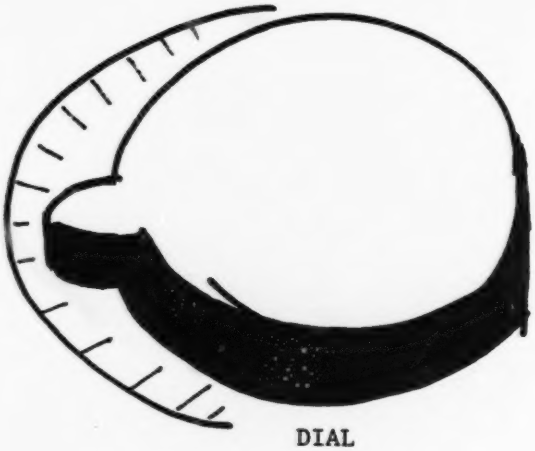
CHIPPING HAMMER

LESSON 6

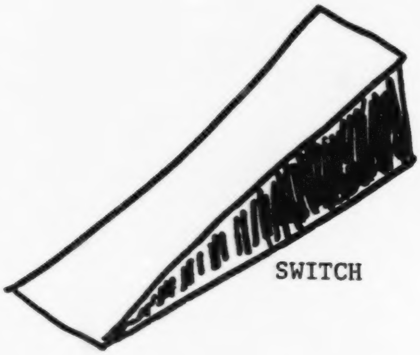


STUB CAN

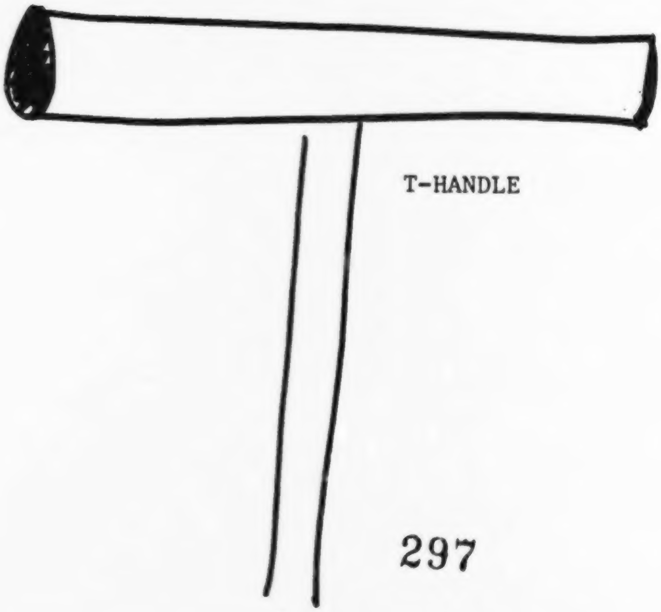
LESSON 8



DIAL

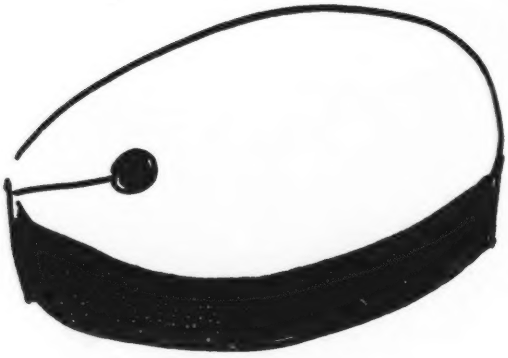


SWITCH

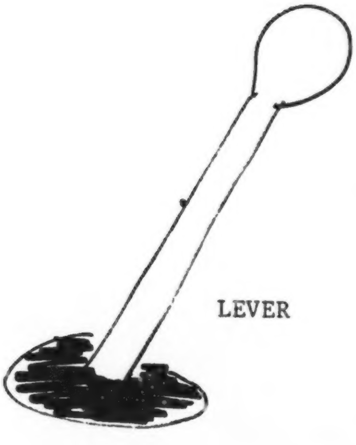


T-HANDLE

LESSON 8



KNOB



LEVER

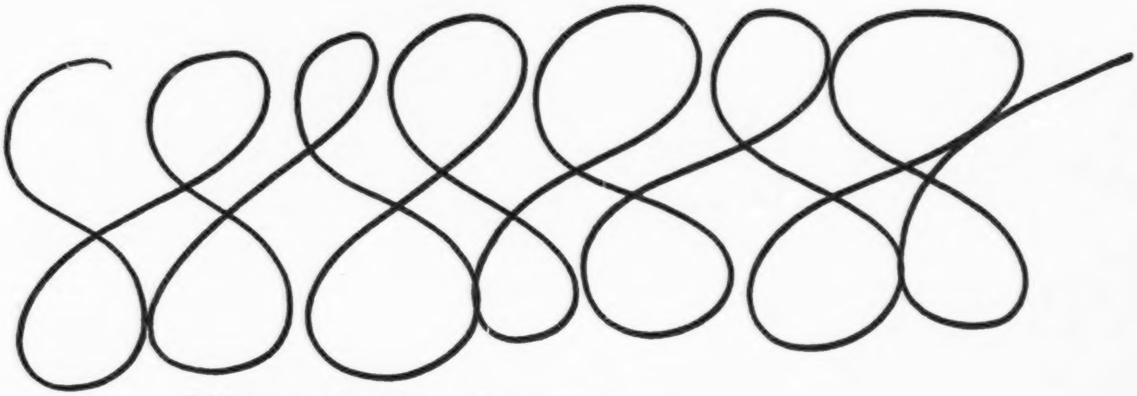
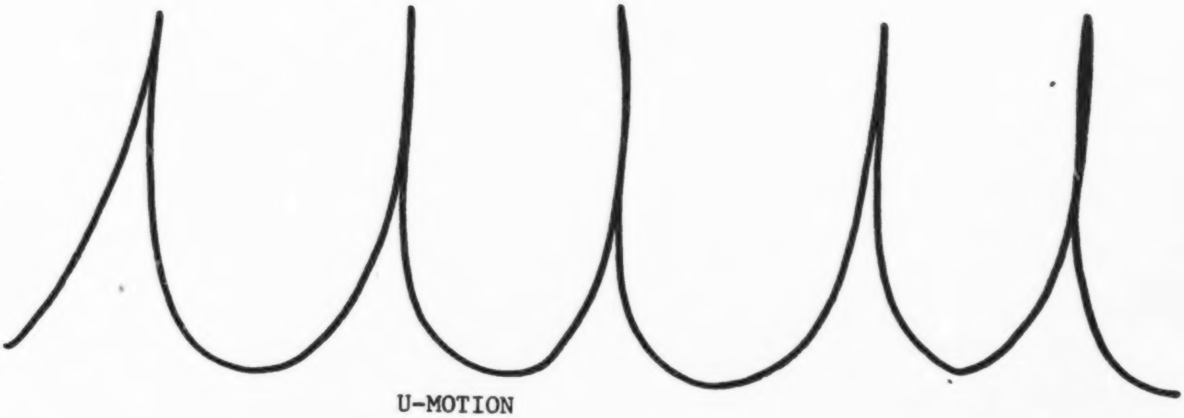
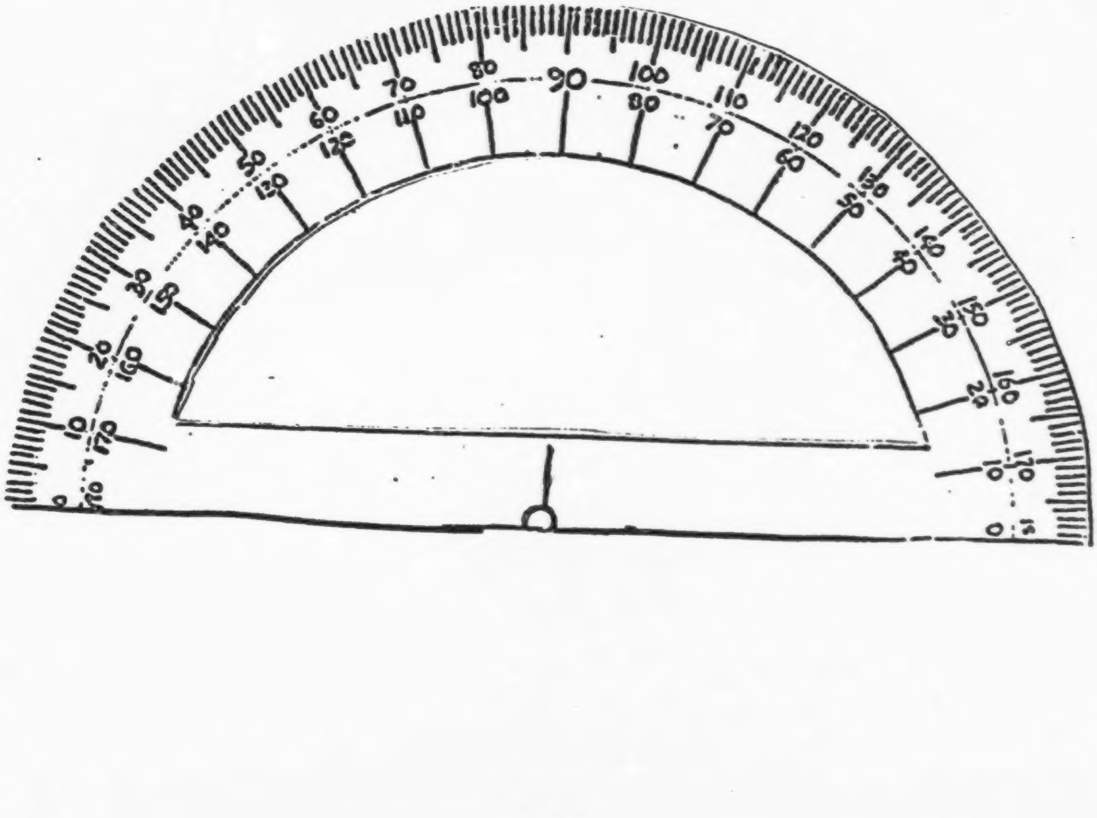


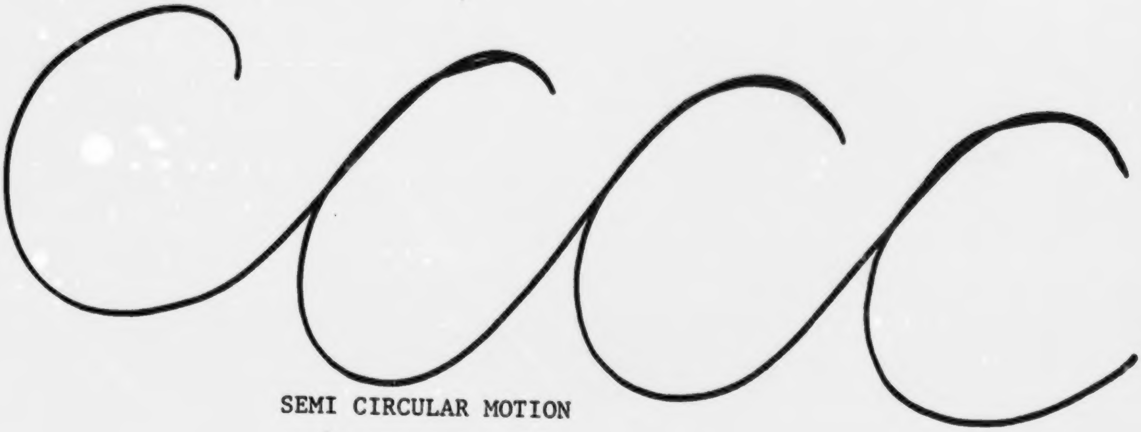
FIGURE EIGHT MOTION/WEAVING MOTION



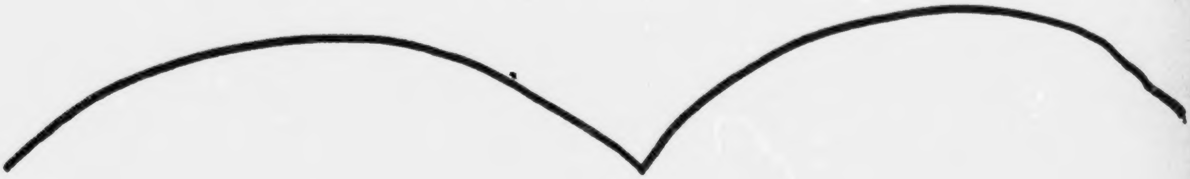
U-MOTION

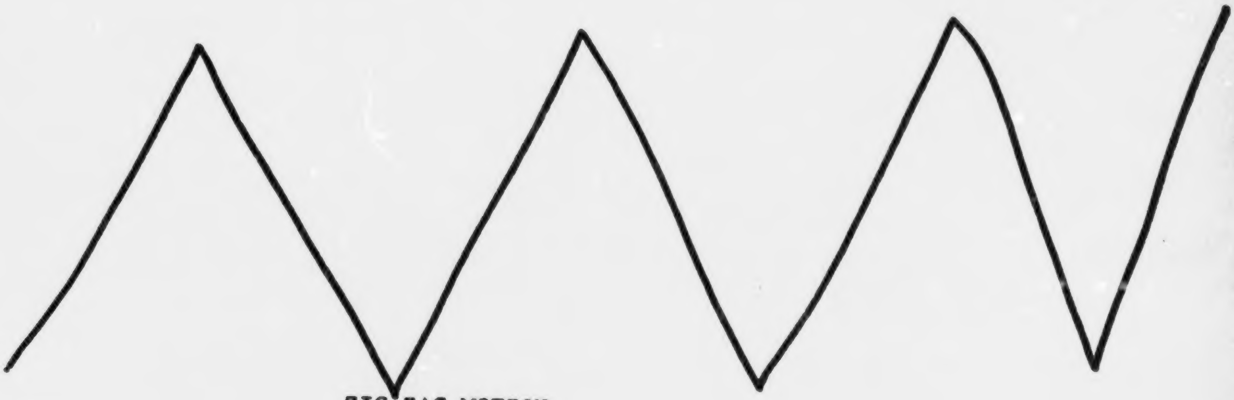


LESSON 9

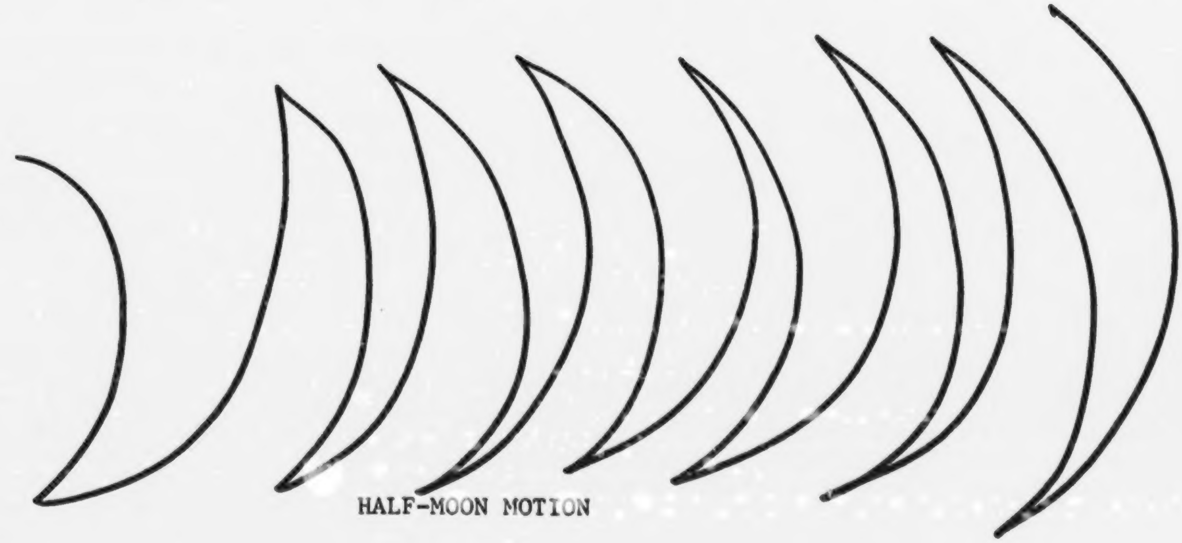


SEMI CIRCULAR MOTION

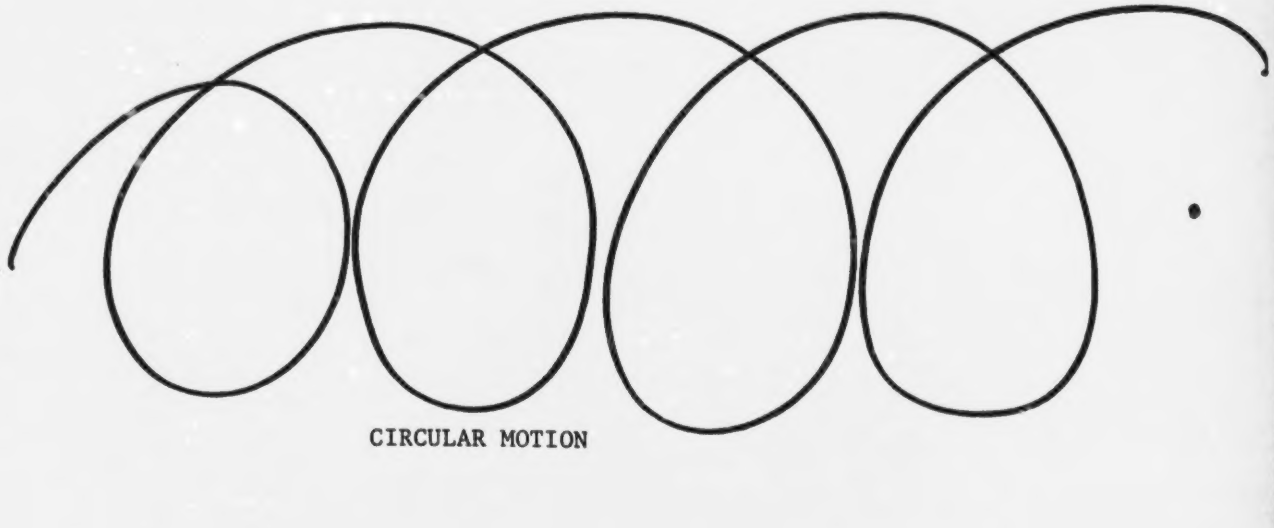




ZIG-ZAG MOTION



HALF-MOON MOTION

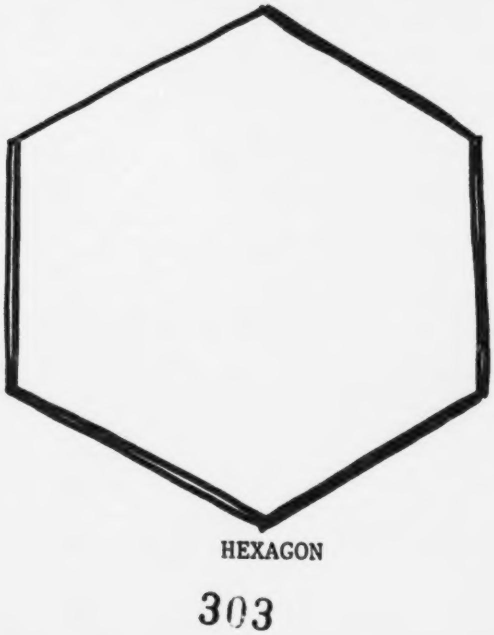


CIRCULAR MOTION

LESSON 9

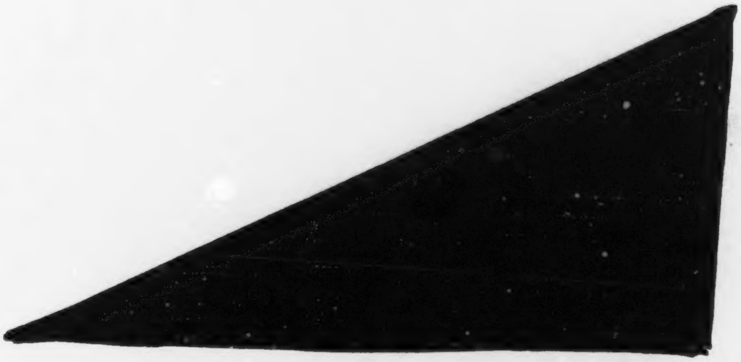
SHEET

ROD

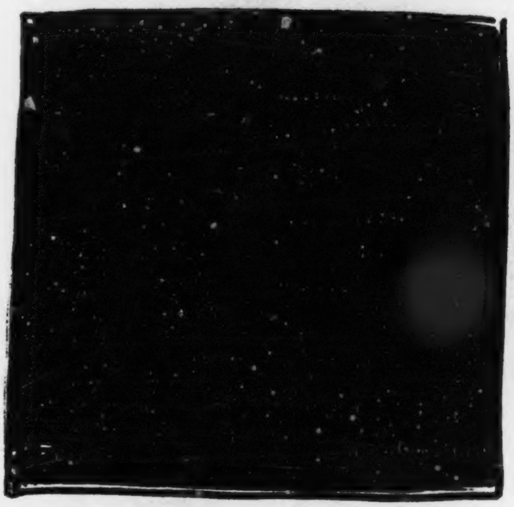


HEXAGON

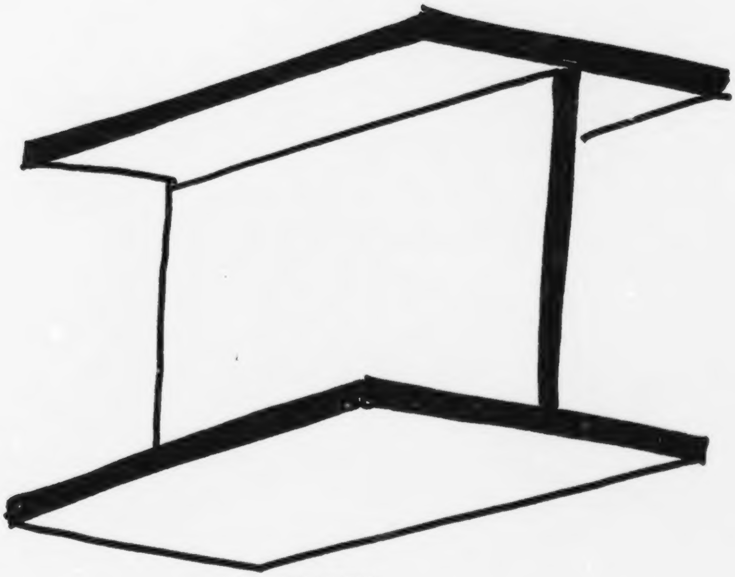
LESSON 13



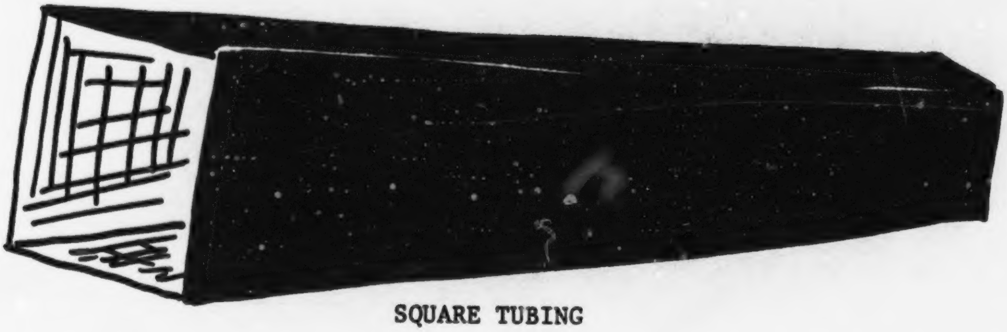
TRIANGULAR



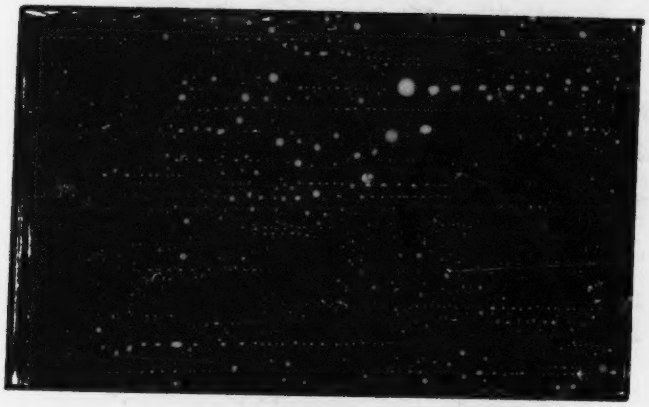
SQUARE



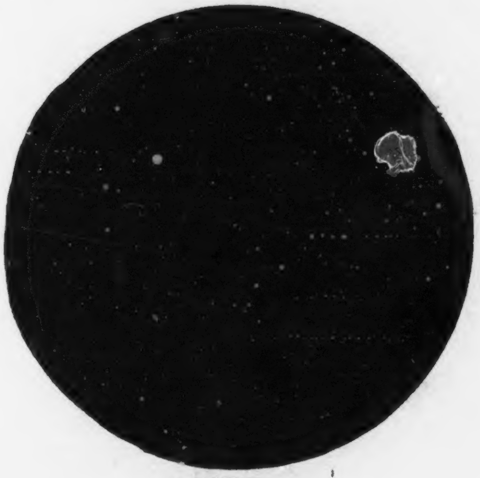
I-BEAM



SQUARE TUBING

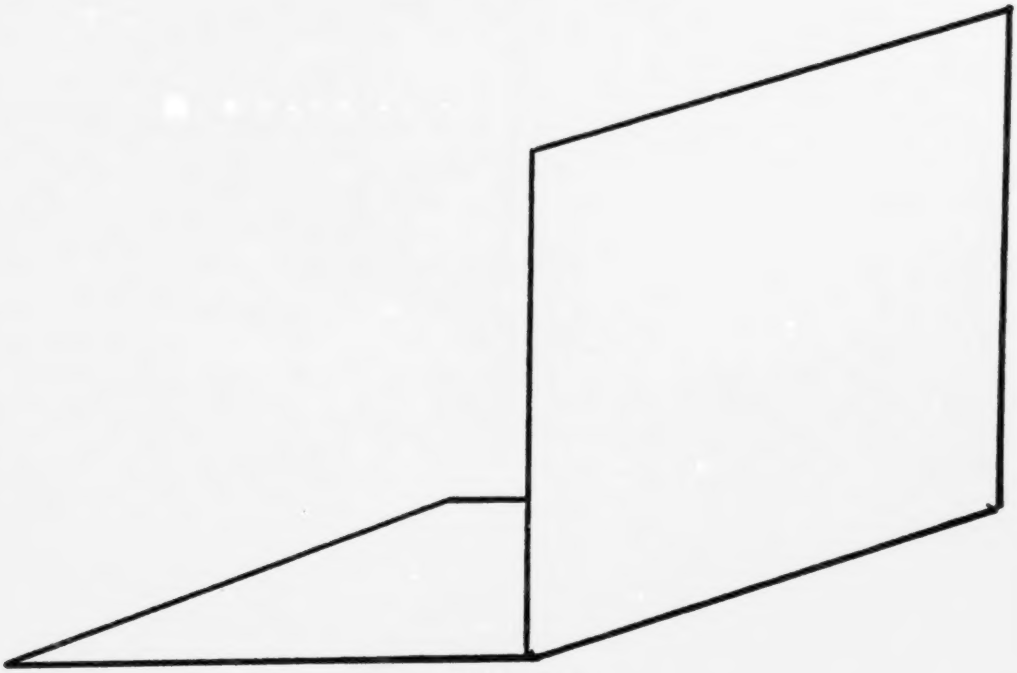


OBLONG

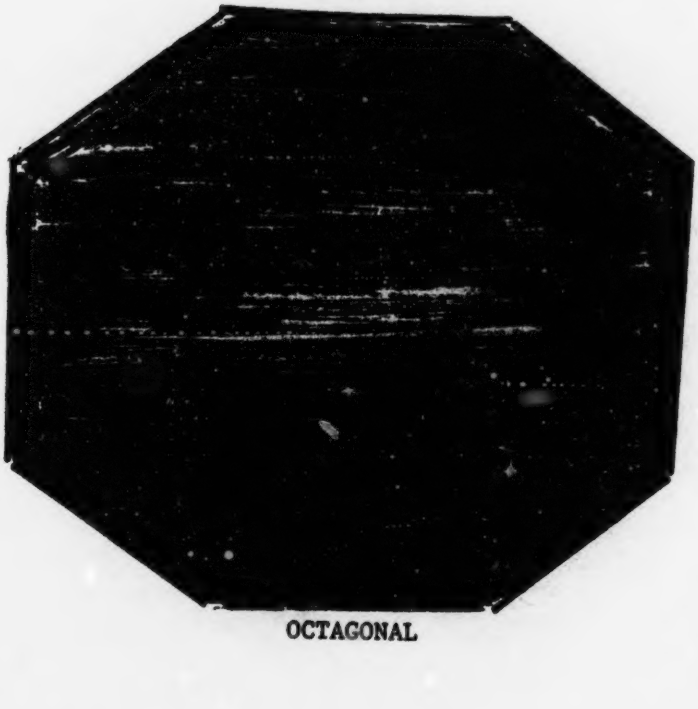


ROUND

LESSON 13

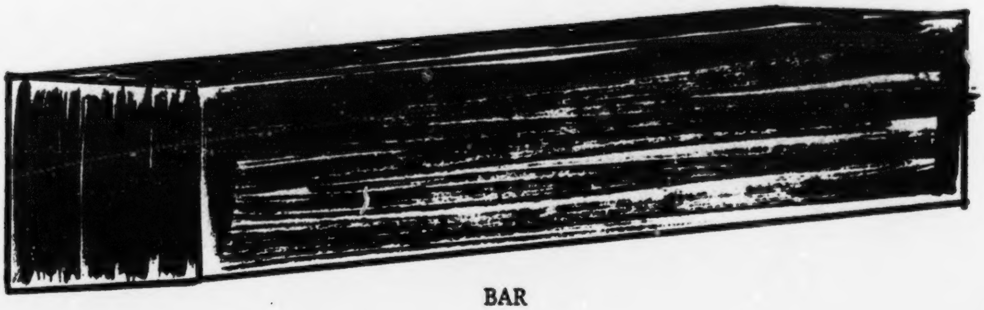


ANGLE IRON

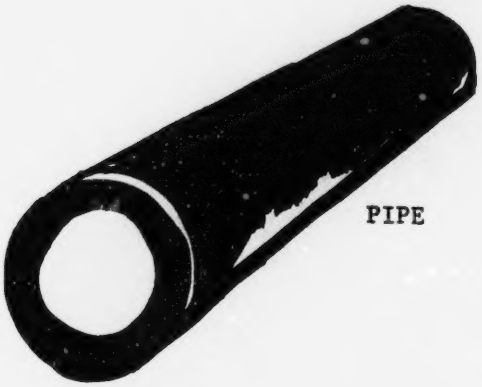


OCTAGONAL

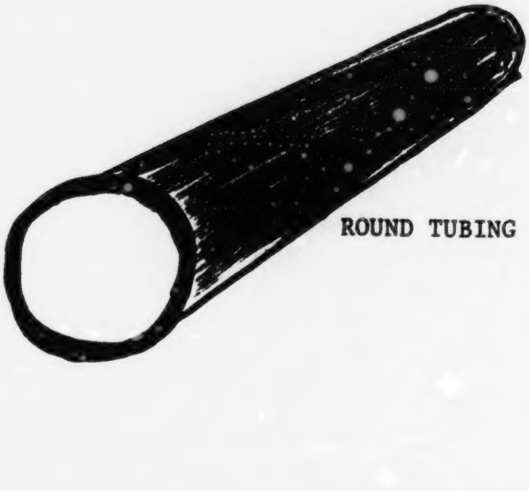
LESSON 13



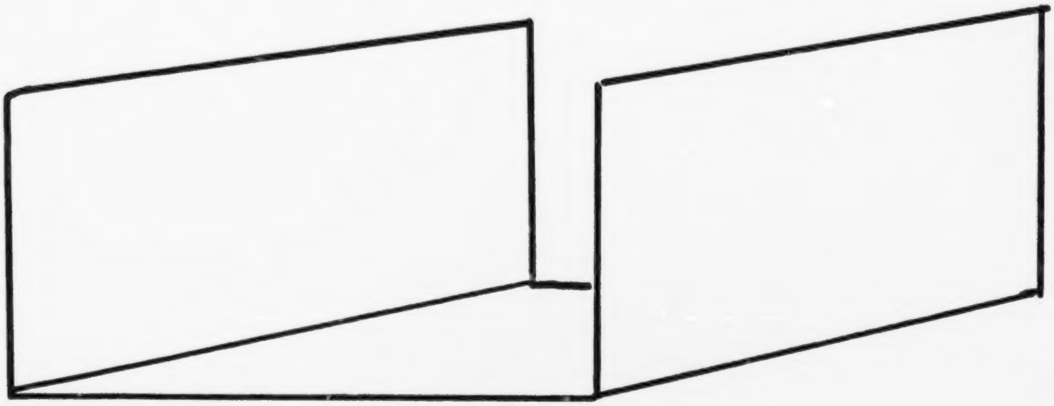
BAR



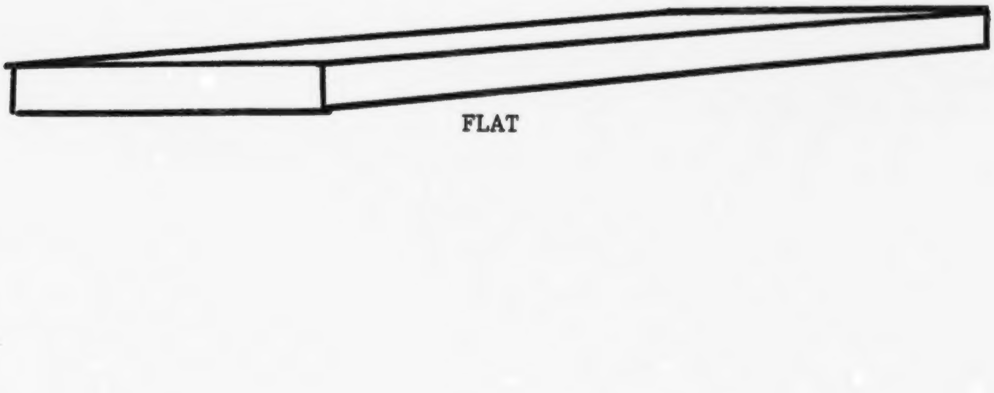
PIPE



ROUND TUBING

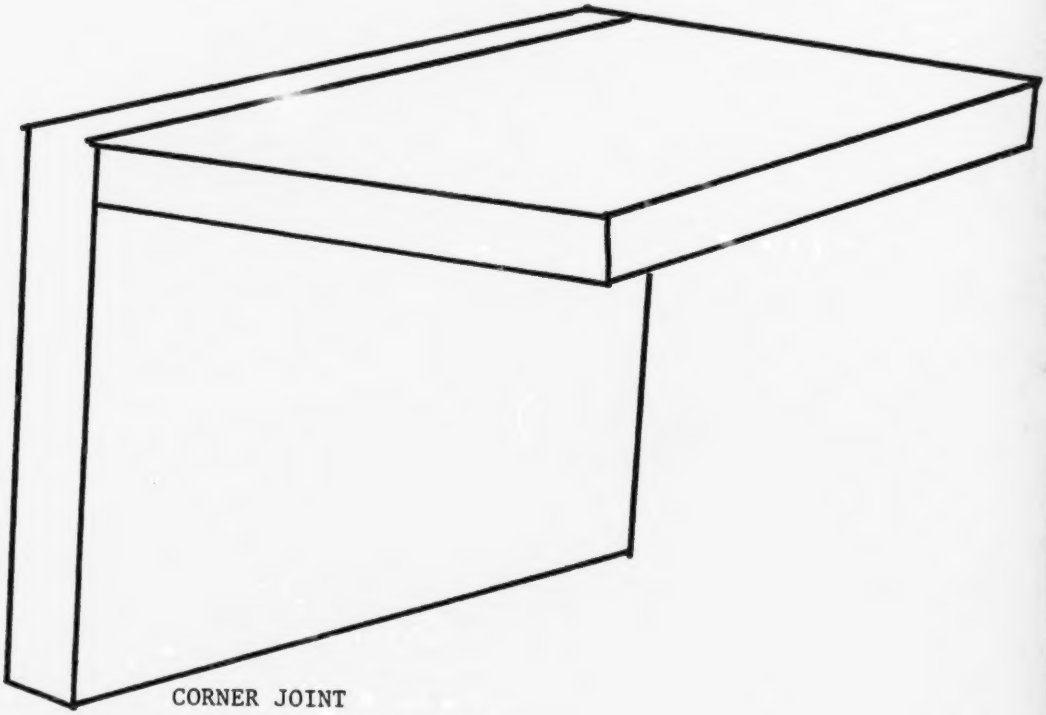


CHANNEL

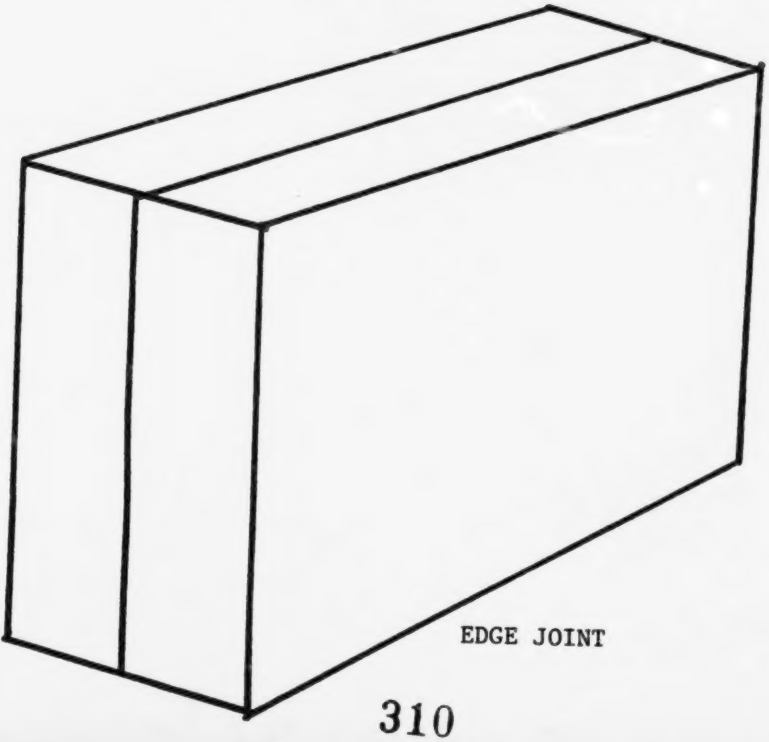


FLAT

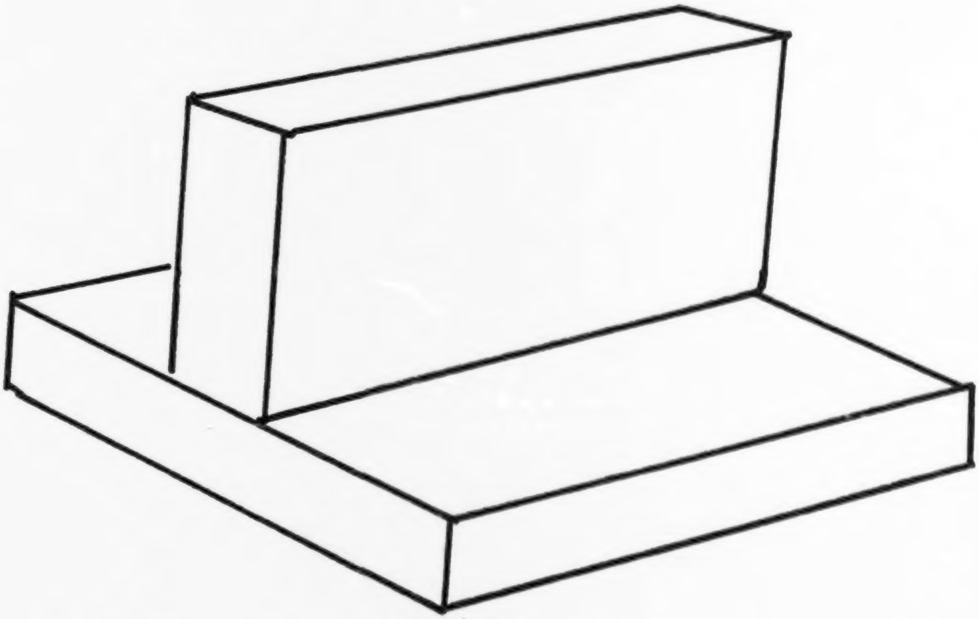
LESSON 14



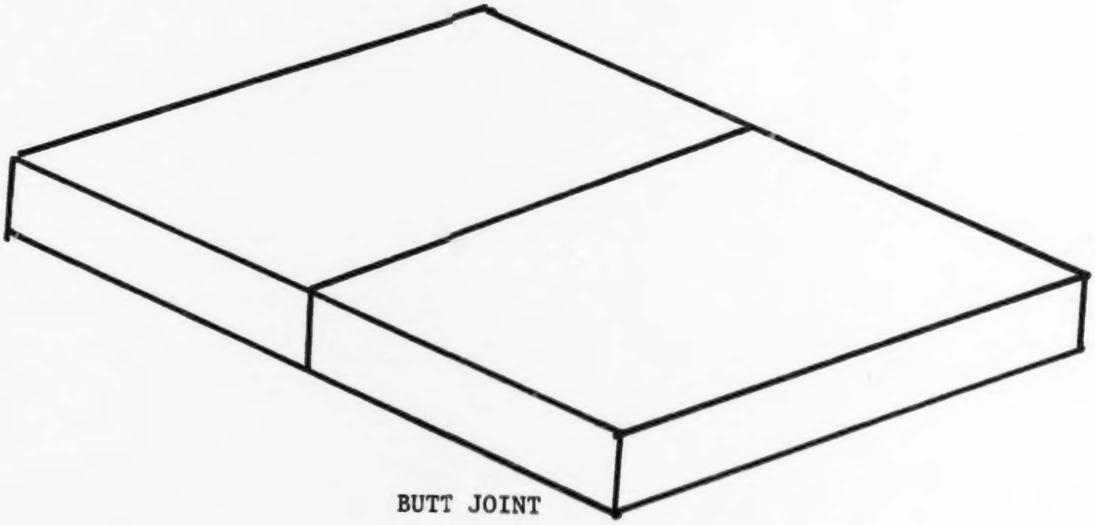
CORNER JOINT



EDGE JOINT

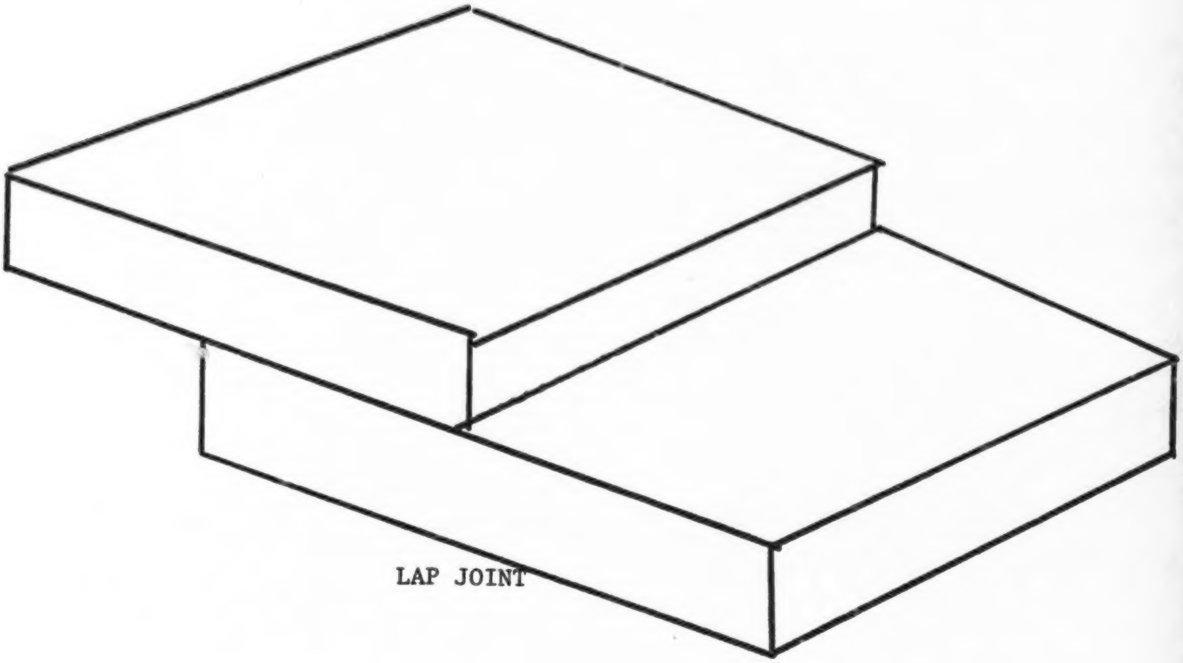


T-JOINT

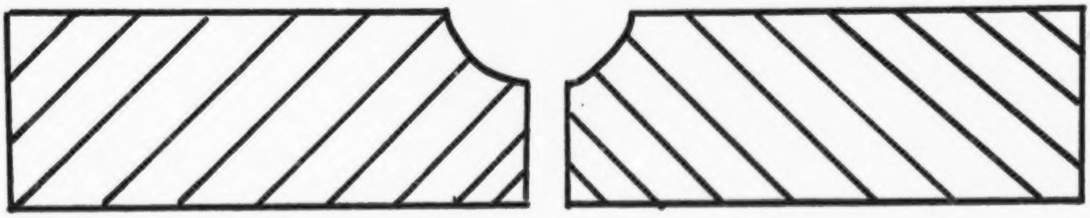


BUTT JOINT

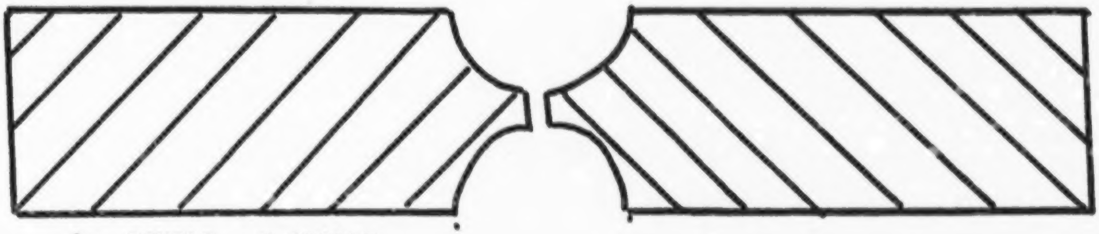
LESSON 14



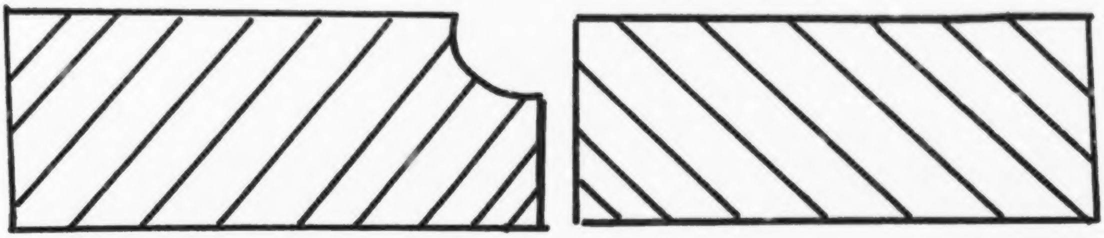
LAP JOINT



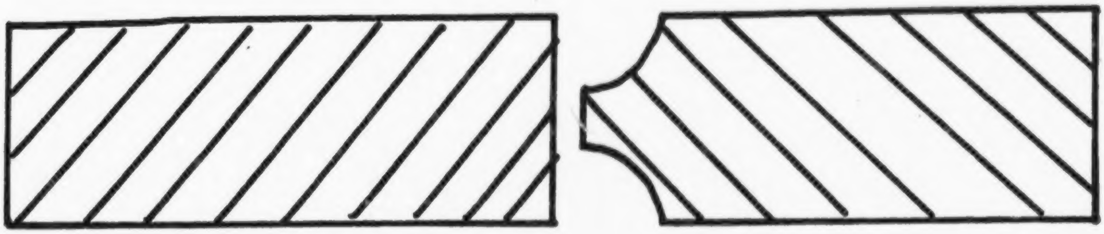
1. SINGLE - U GROOVE



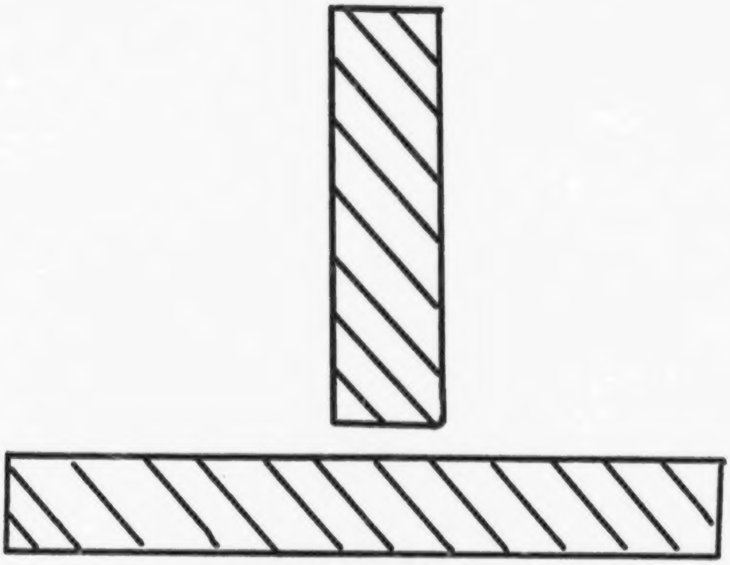
2. DOUBLE - U GROOVE



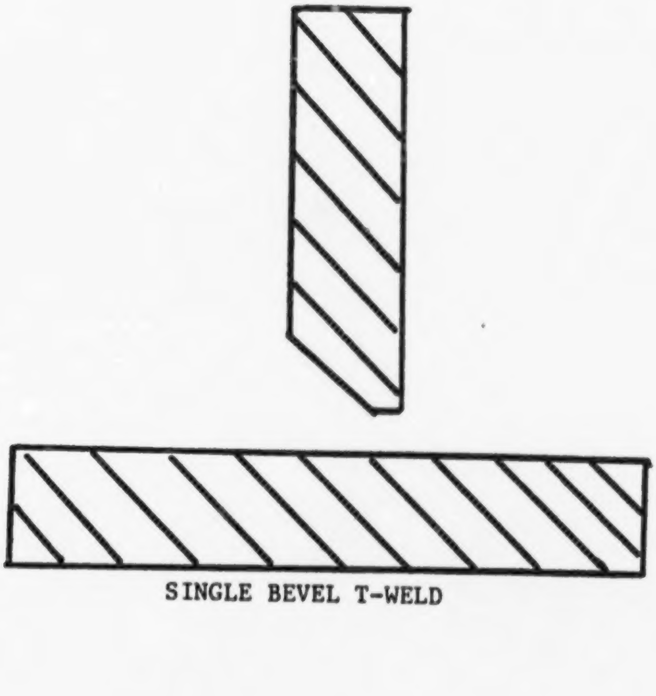
3. SINGLE - J GROOVE



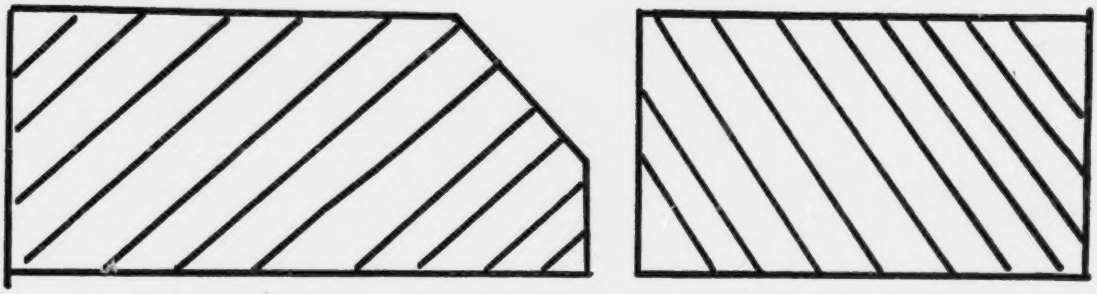
4. DOUBLE - J GROOVE



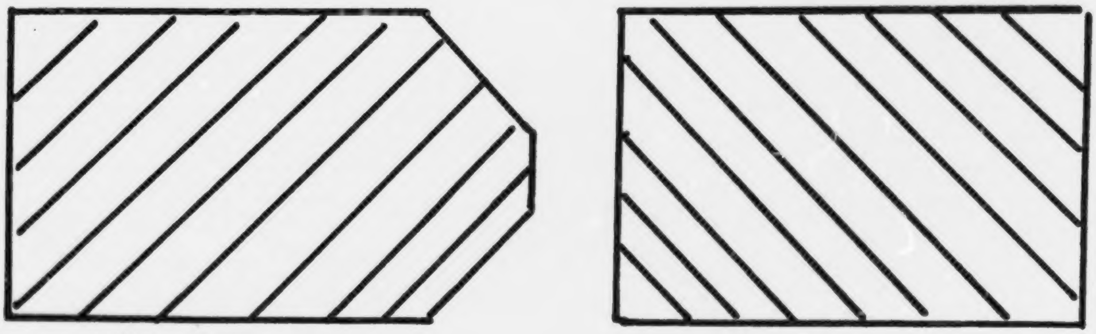
SQUARE GROOVE T-WELD



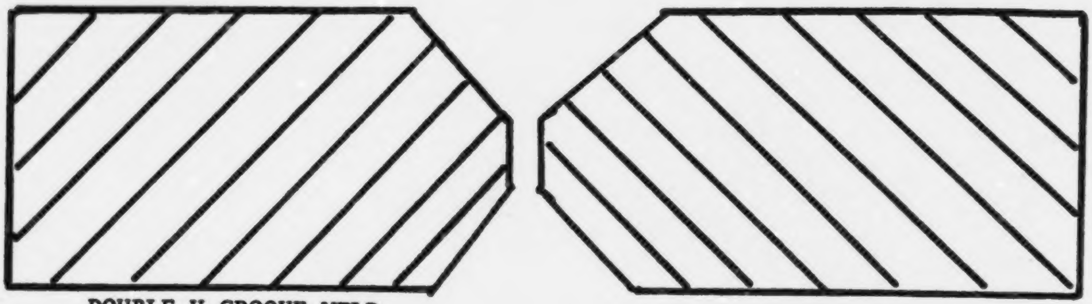
SINGLE BEVEL T-WELD



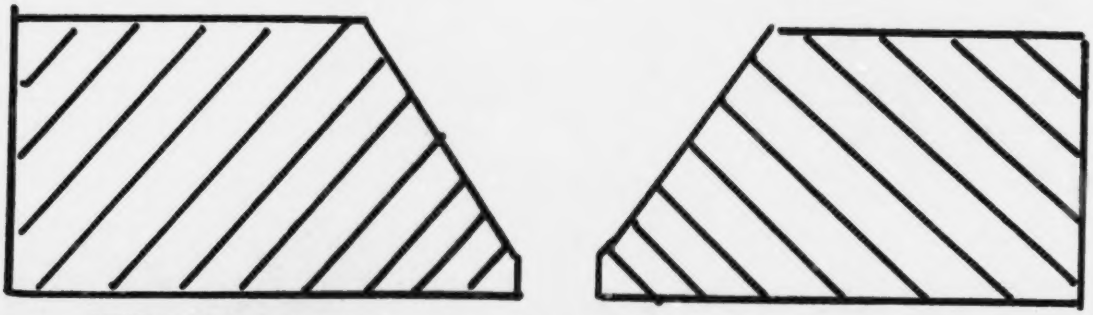
SINGLE BEVEL GROOVE WELD



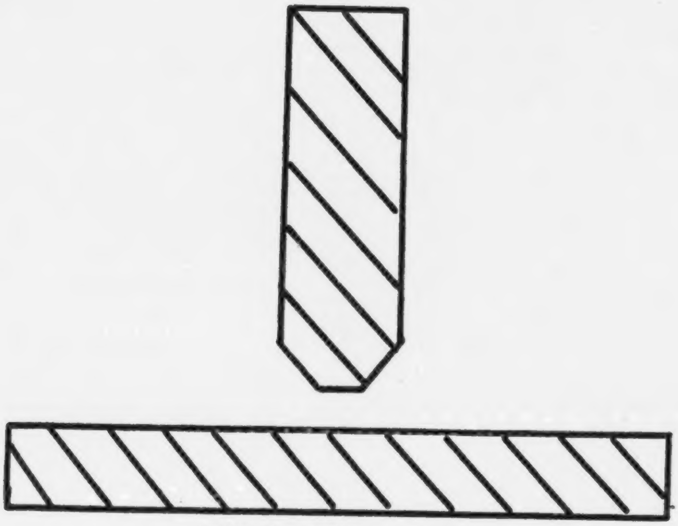
DOUBLE BEVEL GROOVE WELD



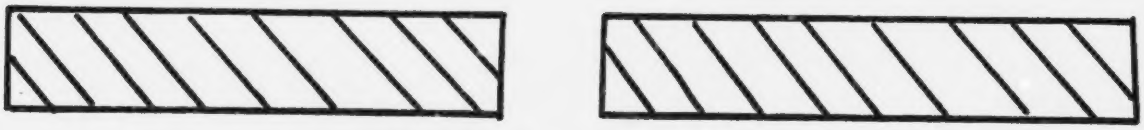
DOUBLE V GROOVE WELD



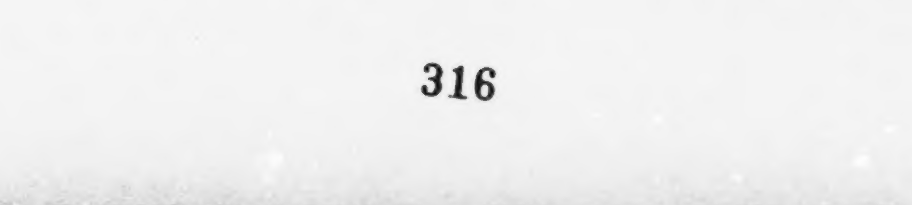
SINGLE V GROOVE WELD



DOUBLE BEVEL T-WELD



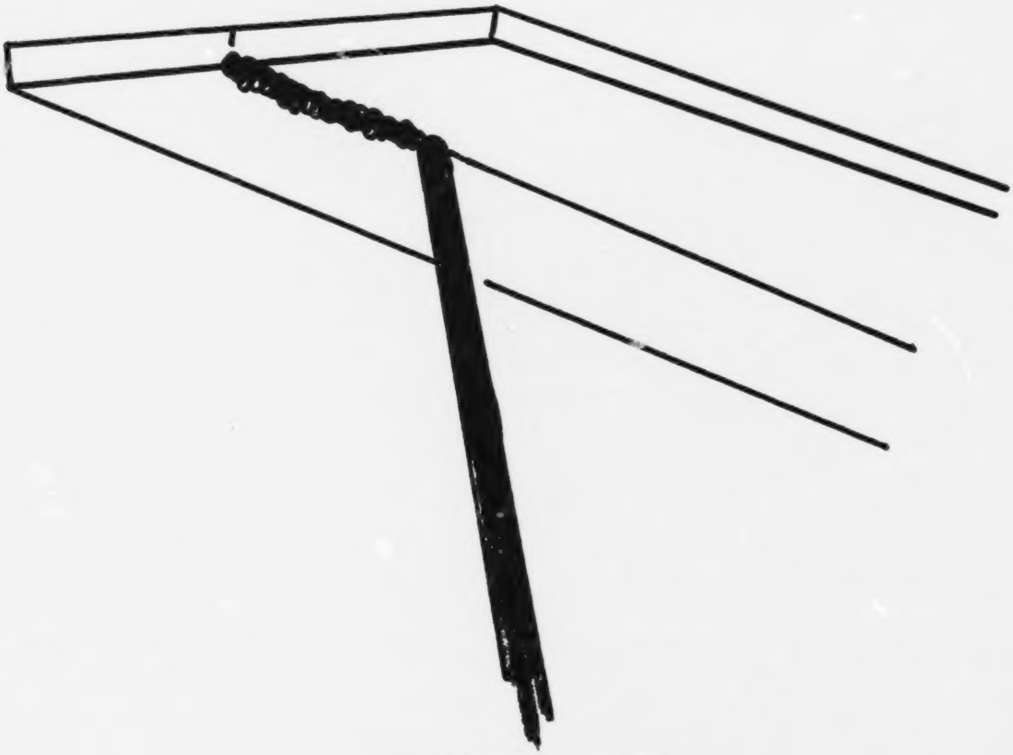
SQUARE GROOVE WELD



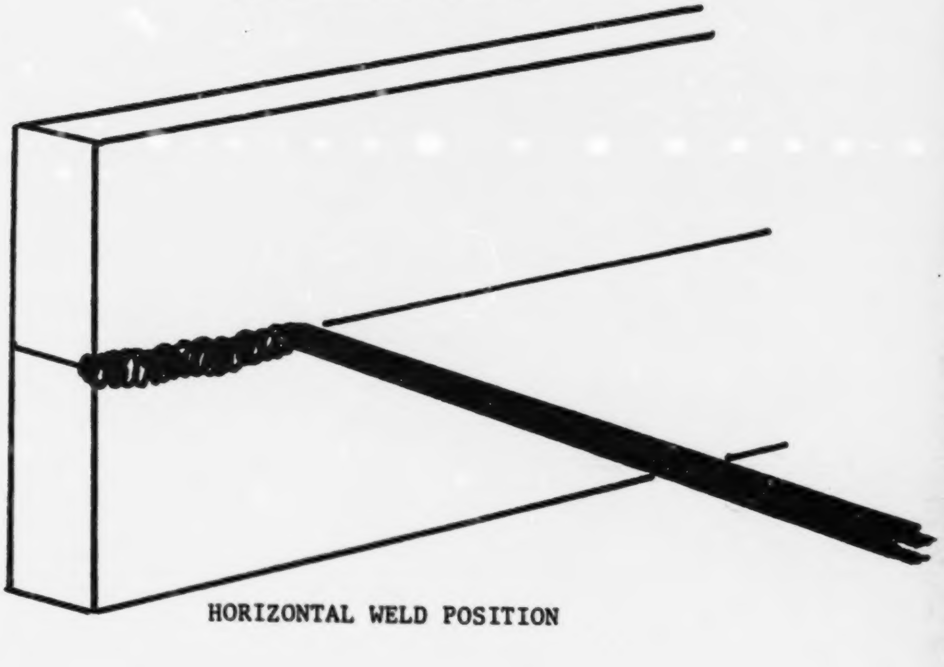
LAP GROOVE

LESSON 17

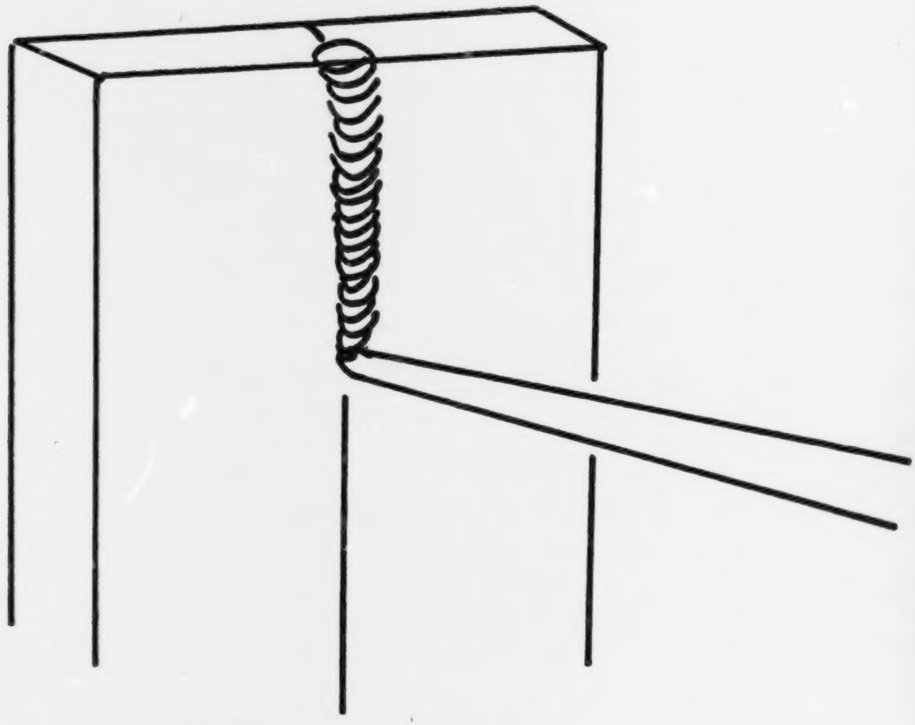
WELDING POSITIONS



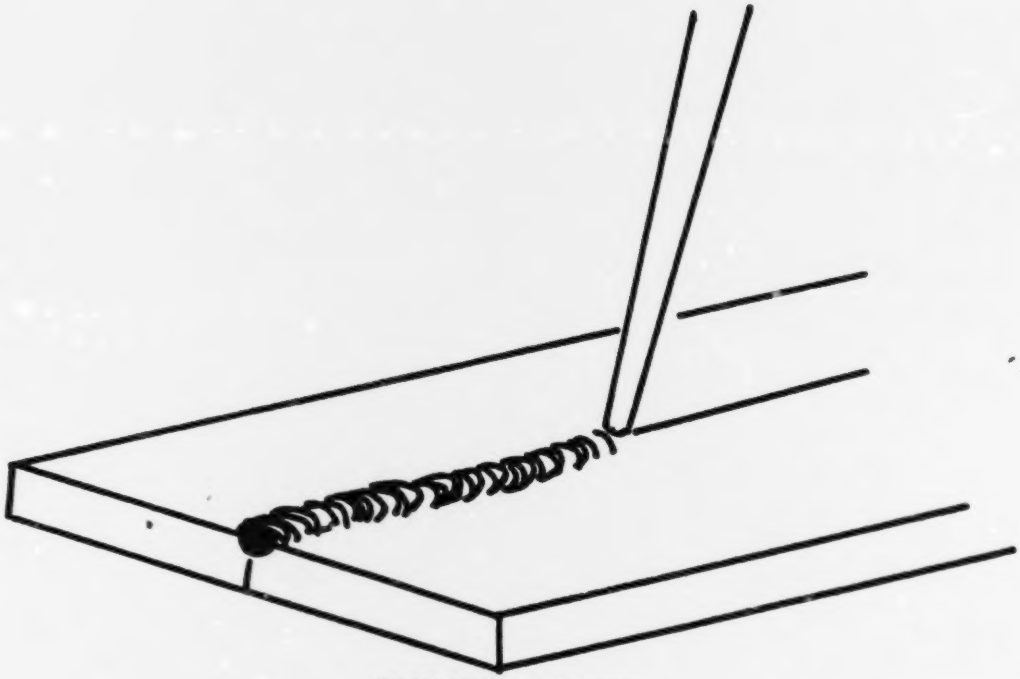
OVERHEAD WELD POSITION



HORIZONTAL WELD POSITION



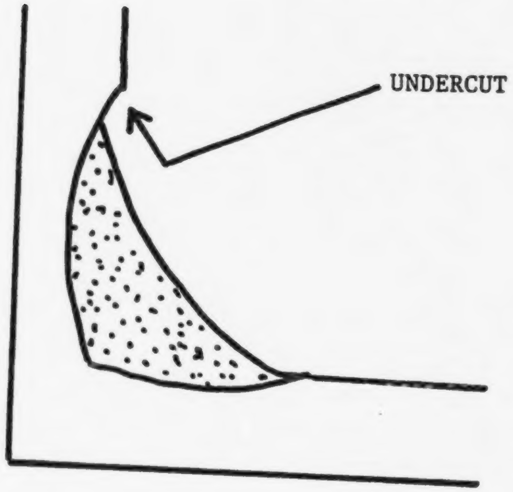
VERTICAL WELD POSITION

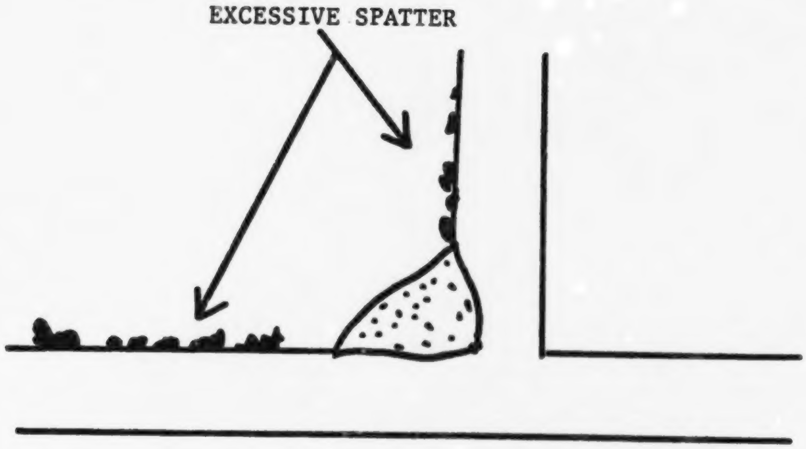


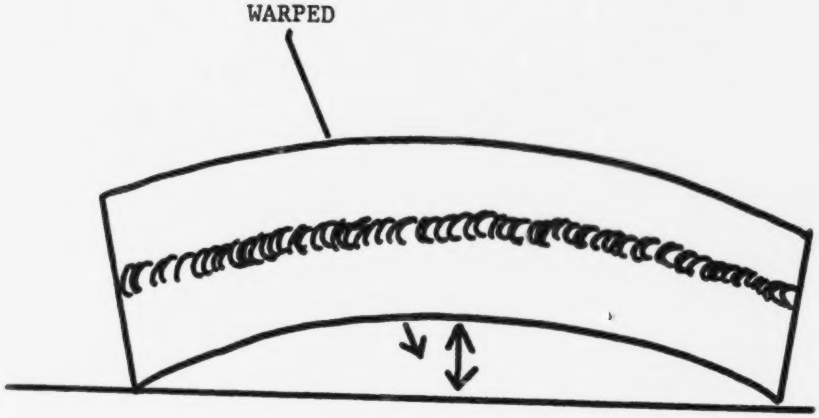
FLAT WELD POSITION

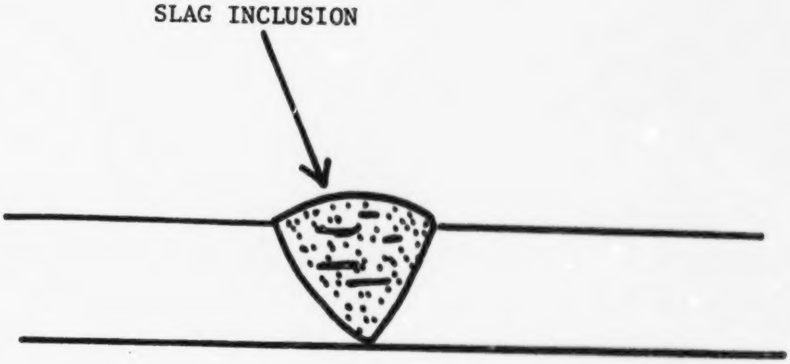
LESSON 19

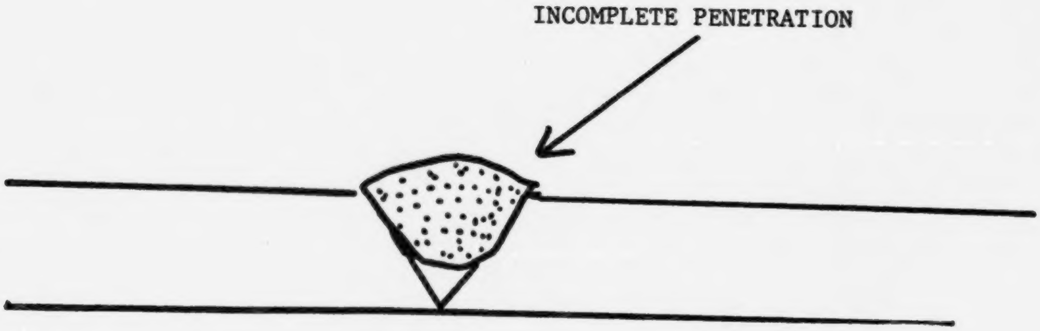
WELDING DEFECTS

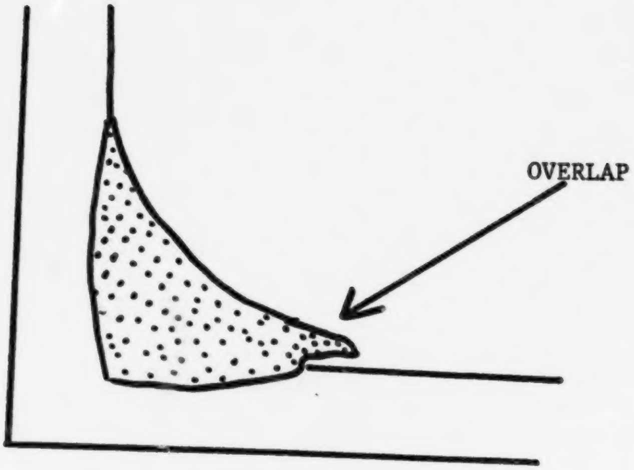



EXCESSIVE SPATTER


WARPED

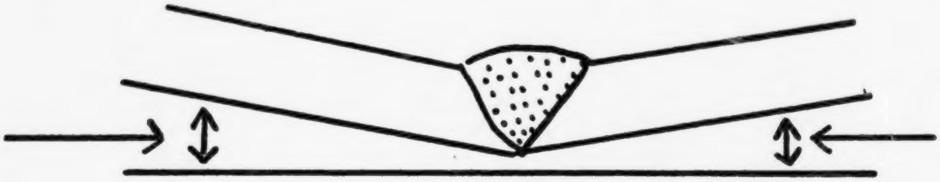

SLAG INCLUSION

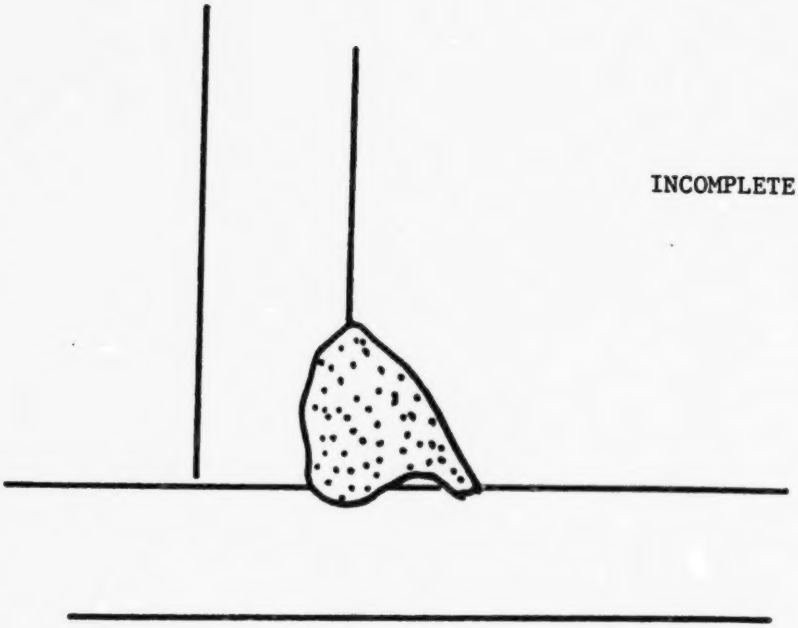

INCOMPLETE PENETRATION


OVERLAP

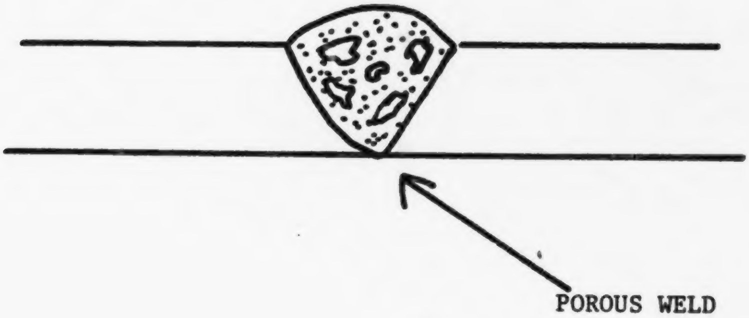
LESSON 19

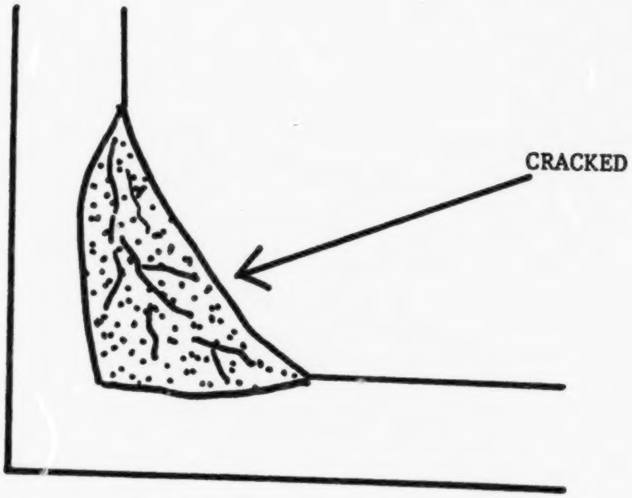
DISTORTION



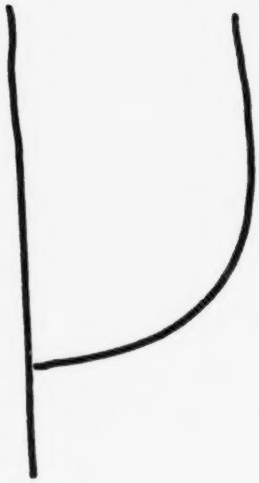


INCOMPLETE FUSION

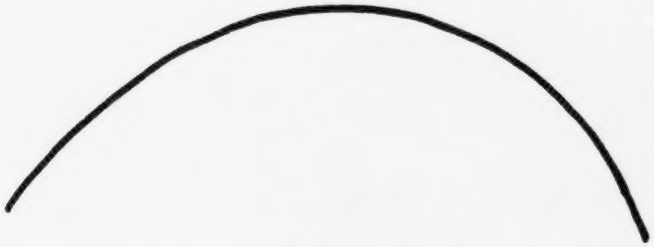

POROUS WELD


CRACKED

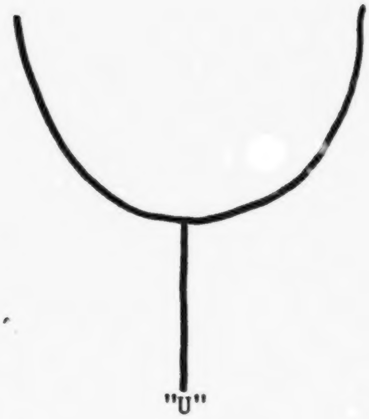
LESSON 21



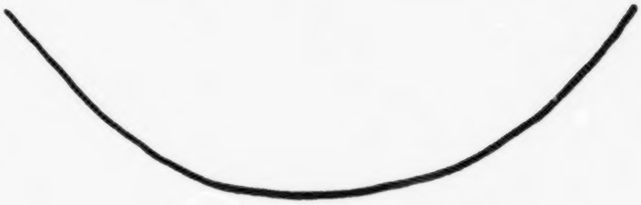
"J"



CONVEX

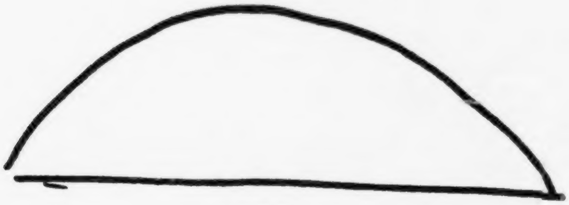


"U"

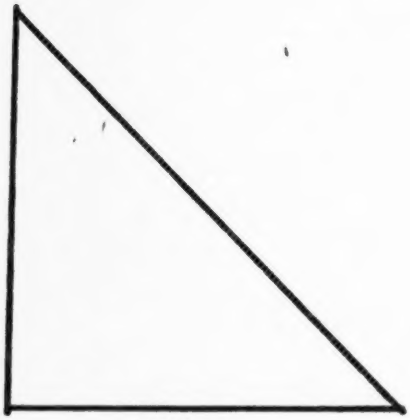


CONCAVE

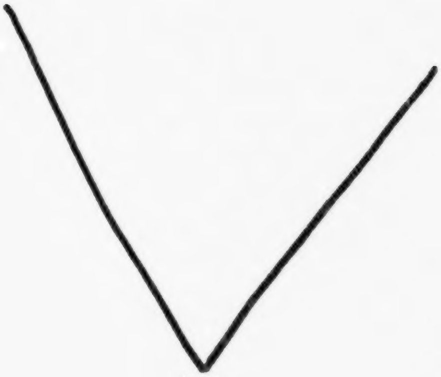
LESSON 21



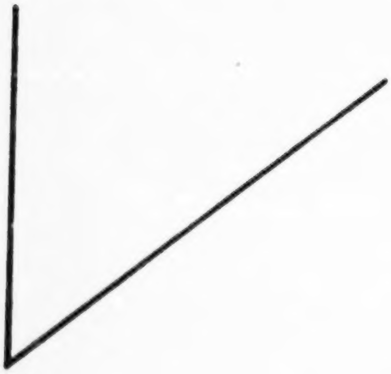
BEAD



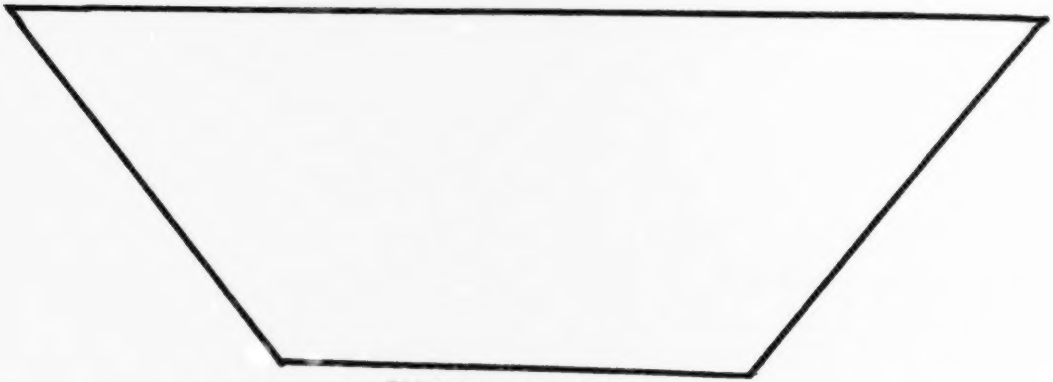
FILLET



"V"

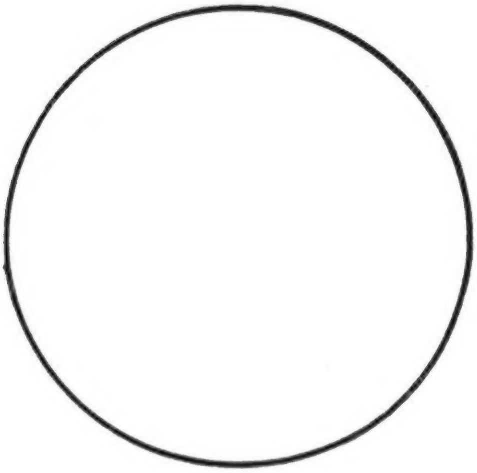


BEVEL

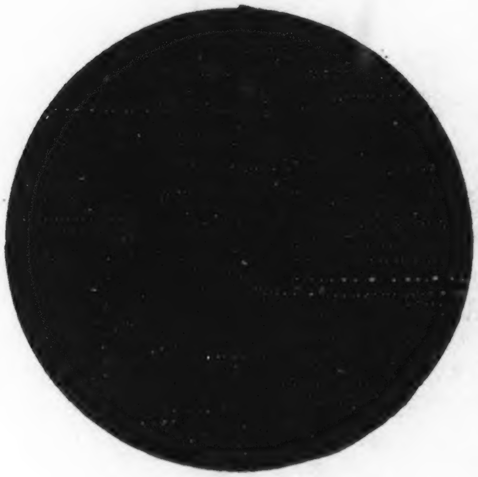


PLUG OR SLOT WELD

LESSON 21

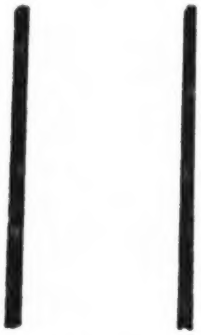


WELD ALL AROUND



FIELD WELD

FLUSH



SQUARE